Home Computing WEEKLY

An Argus Specialist Publication

Britain's brightest weekly, packed with reviews and listings

No. 57
April 10-16, 1984

40p

FREE competition

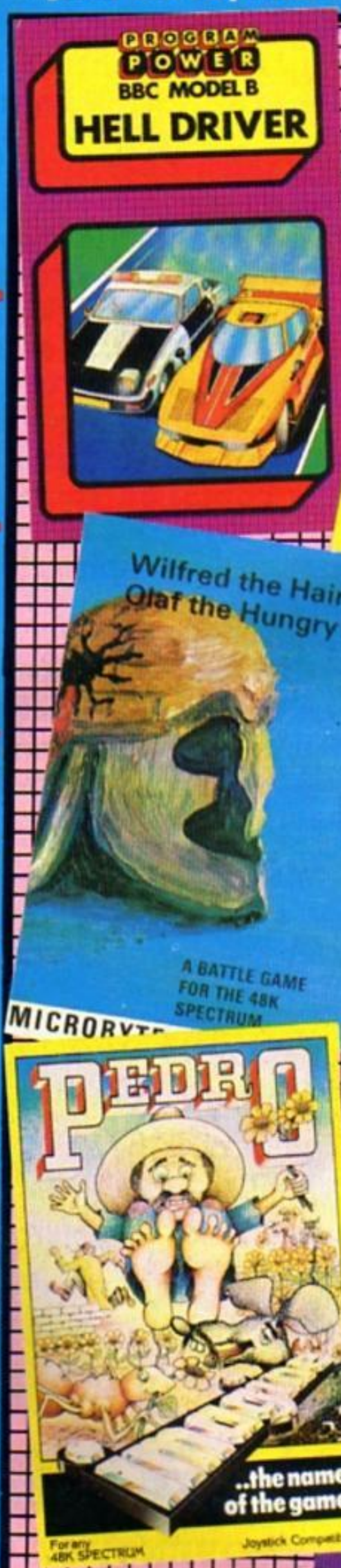
Win a 747 flight simulator from DOCTOR SOFT

Software reviews for: Spectrum, BBC, Dragon, Texas, Oric, Electron

Foolproof INPUT routines for your Spectrum programs

Programs to type in for the Spectrum, VIC-20, Commodore 64, and Texas

AND Two pages of your letters, U.S. Scene, news . . .



Games tapes at £1.99 each

Pocket money games tapes, at £1.99 each, have been launched for sale in video shops, petrol stations, hi-fi stores, supermarkets and newsagents.

But one big distributor, who supplies software to computer shops, said: "In this market, as in any other, you get what you pay for."

Mastertronic, formed by men with a background in video film distribution, has brought out 14 titles — eight for the Commodore 64, four for the Spectrum and two for the VIC-20. Another seven will appear by the end of the month and then at the rate of one to three a week. A few will be priced at £2.99.

One of the directors, Alan

Continued on page 5

Software 'sales dive'

Software sales have dropped sharply in the last three months — and by more than the seasonal dip, says a market research company.

And as a result some software houses are going to go out of business, the company predicts.

Researchers for Gowling Marketing Services questioned 120 software houses, from one-man operations to those which are part of large organisations.

Paul Stoddart, of Gowling, said: "Our initial impression is

Continued on page 5

new Spectrum Arcade action

CDS Micro Systems
10, Westfield Close, Tickhill, Doncaster DN11 9LA.

new Spectrum Adventure

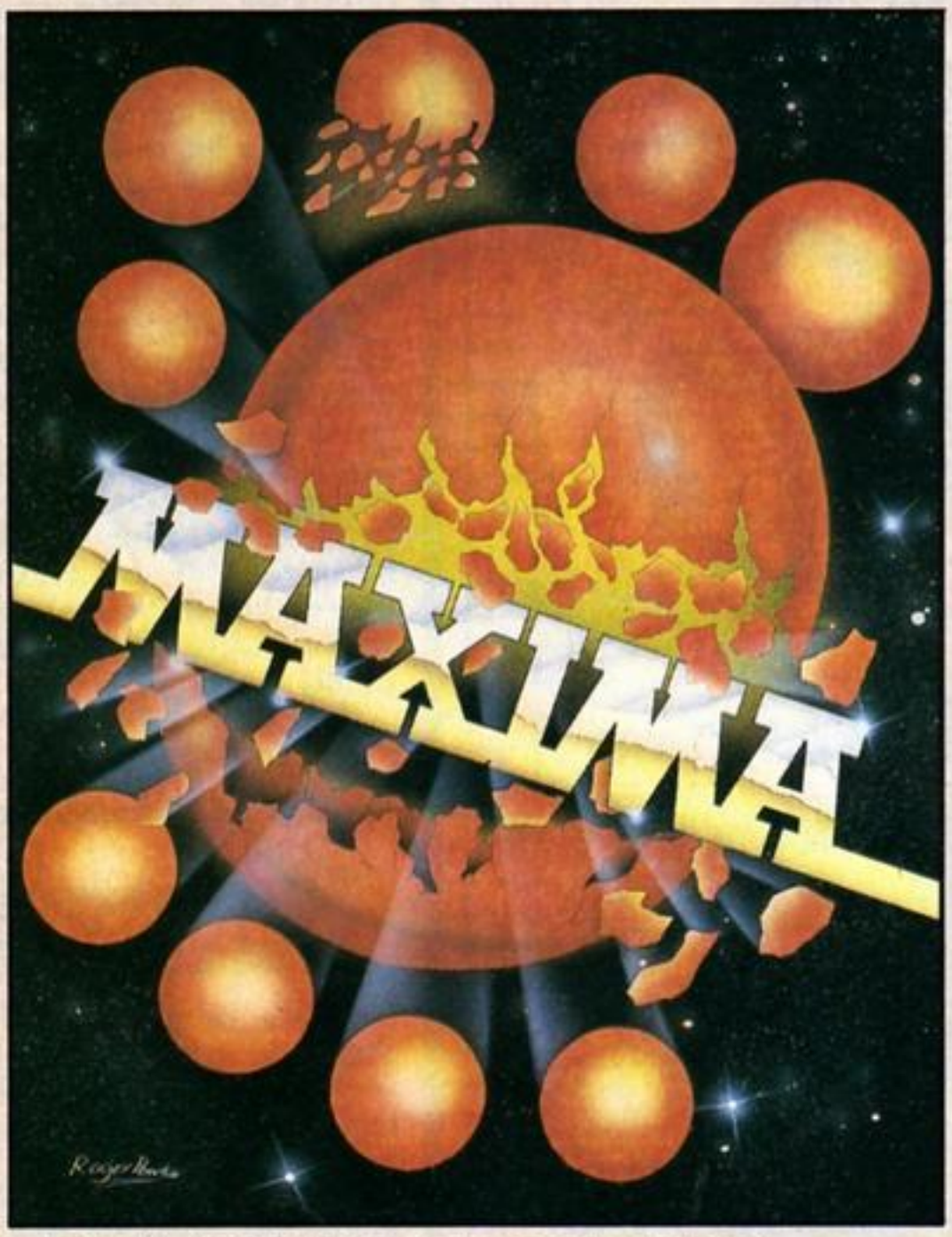
CDS Micro Systems
10, Westfield Close, Tickhill, Doncaster DN11 9LA.

IN YOUR SHOPS FROM 21st APRIL

The First Major Software House to introduce programs for the Memotech 500/512

PSS LAUNCH MEMOTECH SOFTWARE

MAXIMA is certain to become a best seller for the Memotech. It is a graphically superb game that has you zapping 16 different varieties of aliens, each with its own formation and attacking patterns.



The game opens with your ship executing an impressive jump through hyper-space to where the action is. First up are the green snappers - easy targets against the starry backdrop. Next comes the blue meanies, a swirling bunch of wriggling invaders. To follow, a crescent of rather beautiful revolving hexagonal barrels who arc around the screen raining bombs on you. Its a shame to pot these lovely creatures. On you go to a further 13 screens of magnificent graphics.

Devestatingly simple in concept it nevertheless has that indefinable ability to compel you to have just one more attempt to try and see what the 16 screens hold in store.

A must for all Memotech owners.

R.R.P. £6.95

ADDITIONAL PROGRAMS SOON TO BE RELEASED.

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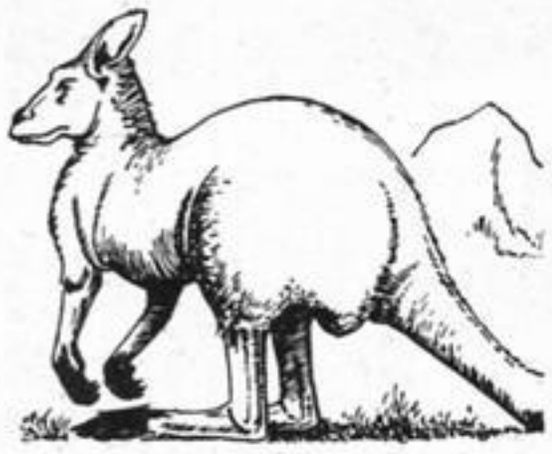

Watch out! You can help frogs and a kangaroo in our Spectrum programs. Just type them in and play

Fly a Boeing 747 with your computer. Try this week's competition and you could win a flight simulator from Doctor Soft

There's pages of software reviews in Home Computing Weekly — read before you buy

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Take up the challenge from The Zork in our game for the Commodore 64

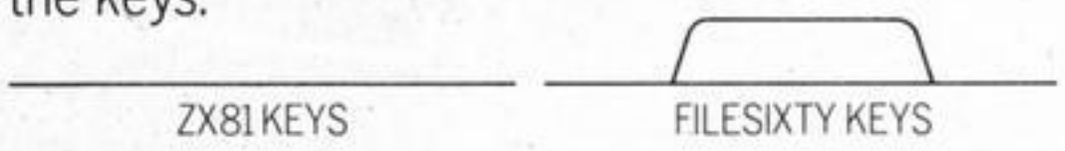
Quality tested programs for all these computers are in this week's issue of Home Computing Weekly.

A NEW, IMPROVED ZX81 KEYBOARD AT THE SAME OLD PRICE. £9.95.

There's only one thing wrong with the ZX81. Its keyboard.

Or rather its lack of one.

Since it's flat your fingers don't feel as if there's any response to the pressure put on the keys.



In other words, you're not quite sure which keys you've pressed until the screen actually tells you.

Our new, improved push button keyboard changes all that.

It matches the ZX81 perfectly. And the keys give a real calculator-type feel.

To set it up all you have to do is peel off the adhesive backing and stick it on top of the ZX81 touchpad.

Because no tampering or soldering is involved the guarantee is not affected. And it will last for up to 3½ million operations.

But our keyboard doesn't just come loaded with features. With it comes a separate overlay and a set of coloured stick-on labels to make game playing easier.

It's yours for the original price of £9.95.

Whichever way you look at it, we think you'll agree that it's a keyboard that's quite outstanding.

Orders to Filesixty Ltd., FREEPOST, London W9 2BR.
Cheques/PO made payable to Filesixty Ltd.
Please send me_____(qty.) Keyboards at £9.95 each (including VAT and P&P).

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£1.99 tapes

From front page

Sharam, said: "I have been involved in selecting the games and we are quite happy to stand them against other people's products.

"They are written by established software houses and are very good games. I've tested them on my children and they could not believe the prices.

"Their reaction was: 'Great, we can buy more games now.'

"Our slogan is 'quality games at a price everyone can afford'. Software is now a pocket money acquisition. At £1.99 they can buy one a week, just like records. I thing people will collect them in the same way."

Mastertronic's chairman, Frank Herman, said: "We are strong in video shops because of our background, but the potential is enormous. There are 80-90,000 suitable outlets in the UK not at present selling computer software. Among them are 6,000 video libraries.

"We are a marketing company. We don't pretend to be anything else."

Another director, Terry Medway, said: "We have priced our products with a fair mark up. Everyone else is either paying too much or being greedy."

Mr Herman said four of the first 21 games had already been published, but the rest were new releases. This would be made clear.

Duck Shoot and Vegas Jackpot are both from Mr Chip, of Llandudno, which still sells them at the original £5.50.

Doug Braisby, owner of Mr Chip, said: "I would have preferred to continue with them myself, but the market has been ignoring me. It was a case of knowing which way the market was going.

"The trade has ignored us; I don't know why. We have been hammering on the door to be let in. It gets to the stage where you get fed up with hammering on the door.

"Mastertronic have come up with a new idea in marketing and we could not afford to be left out. They saw the products and jumped at them. They saw the potential which has been there all along."

He added: "Part of the arrangement was that our name was not supposed to be brought into this. They had no right to tell you."

Two other games, Gnasher and Spectipede, both for the Spectrum, are also still on sale from Gloucester-based R & R.

Managing director Bob Brenchley said: "They are both good games which have been out for a long period. They are both versions of what can be bought in umpteen different versions.

"Mastertronic are doing for the software market what Ronco did for the record industry. They are putting new life into them at a ridiculously low price. I think the prices are too low.

"At first I turned them down. Then they gave me some facts and figures about their way of marketing. I told them I was willing to experiment."

Mr Brenchley said that, if successful, Mastertronic could open new markets, help make piracy pointless a still allow new titles to be sold at the usual prices.

Neil Johnson, joint managing director of distributors Microdealer UK, said: "I don't think they will do it successfully — I don't think the market is sufficiently large to sell enough.

"In this market, as in any other, you only get what you pay for. Old and medium quality products will sell for less than top quality games. They are trying to supply and support areas not reached by the current set up. It's a different need and a different product."

Imagine's Bruce Everiss said: "I would have thought that if the games were good enough to sell for more then they would sell them for more. There is room in the market place for a wide range of prices. They have approached us but we have not sold them anything."

Jeff Minter, of Llamsoft, said: "It's crazy. They must be buying the dog ends. I can't imagine people buying these £1.99 cheapos instead of my stuff. You can't sell anything at £1.99 which has taken three months of development."

Software sold in Harrods, the Naafi, 275 Boots stores and other retailers comes from Websters, whose sales and marketing director is Jennifer Trus.

She said: "Without seeing the product I can't comment, but it's very surprising. I would not have thought it would do anything. They have been in touch with us and they are sending us their products."

• Imagine has confirmed that it has cancelled its price drop to £3.95. Until its boxed games appear, Imagine software remains at £5.50. Imagine's Tim Best said the reason was that — although big software companies could match the lower price and distributors would not have suffered — small software houses has complained they they could not afford to cut their prices and would have been forced out of business.

Mastertronic, 48 George St, London W1

Sales 'dive'

From front page

that there has been a dramatic fall-off since Christmas. Obviously several factors come into it, but this is more than a seasonal feature.

"One of the reasons could be piracy. And one of the consequences of demand dropping is that there are going to be severe cash problems and some are going to go out of business.

"They are going to have to come up with better products. They must find out what the customer wants. They can't go on churning out arcade games. There is such a glut on the market.

"They have looked at the sales figures and projected them through the year instead of using sound marketing strategy."

But Jennifer Trus, of software distributors Websters, said: "I don't share that view. We experienced a drop after Christmas, which is quite normal, but March was very good indeed. I think people just take stock in February and draw in their belts."

Gowling's report, The Home Computer Software Industry, is due to be completed next week and will cost £90.

Gowling Marketing Services, Britannia Buildings, Fenwich St, Liverpool L2 7NA

Briefly

Moneybox, a personal accounts program for the Dragon 32, has just been released by Harris Micro Software at £9.99.

Harris Micro Software, 49 Alexandra Rd, Hounslow, Middx TW3 4HP

Five adventure programs from Richard Shepherd Software are now available on disc for the Commodore 64. They are Transylvanian Tower, Urban Upstart, Everest Ascent, Ship of the Line and Super Spy. Price: £9.50, cassette £6.50.

Richard Shepherd Software, 23-25 Elmshott La, Cippenham, Slough, Berks

Sure! More than 10 tasks simultaneously and, in some cases, up to 300 times faster! That's what replacing the basic ROM with the new FORTH does for the ZX81 – and more!

The brains behind the breakthrough belong to David Husband, and he's building Skywave Software on the strength of it. Already orders are flooding in and it's easy to see why.

The ZX81-FORTH ROM gives you a totally new system. In addition to multi-tasking and split screen window capability, you can also edit a program while three or four others are executing, schedule tasks to run from 50 times a second to once a year, and with a further modification switch between FORTH and BASIC whenever you like.

The ZX81-FORTH ROM gives you a normal keyboard with a 64 character buffer and repeat, it supports the 16k, 32k, 64k RAM packs, it is fig-FORTH compatible and it supports the ZX printer.

The price, too, is almost unbelievable. As a "fit it yourself Eprom", complete with manual, it's just £25+VAT.

Add £2 p&p UK (£5 Europe, £10 outside Europe) and send your order to the address below.

Skywave SOFTWARE

David Husband
73 Curzon Road, Bournemouth,
BH1 4PW, ENGLAND.
Tel: (0202) 302385.
International +44 202 302385.

Debut for new micro

A new computer, made in the Midlands by a Taiwanese company, makes its public debut tomorrow.

Details are being kept secret but, as reported in Home Computing Weekly, it will have a type-writer-style keyboard with cursor keys, 64K of RAM, a single three-inch Hitachi disc drive, colour, 40-column screen — with an option for 80 columns — and a Microsoft-like BASIC.

Using a Z80A processor, it will have both RS232 and Centronics-type interfaces.

Tatung, the largest company in Taiwan, said it will be in the upper price range, designed to appeal to home users wanting to move up to a more powerful computer, to the educational market and to businesses.

It is said to offer an operating system similar to CP/M, the industry standard for business micros.

Tatung bought Decca's consumer electronics division in 1981 and its Brignorth plant is said to make 10 per cent of UK TVs.

Tatung (UK), Hospital St, Bridgnorth, Shrops

Were you fooled?

In case you hadn't noticed, the Spectrum programming article is an anagram of the writer, Simon N. Goodwin, and the program just flashes the screen for about 60 seconds before displaying the words "April Fool". We hope you enjoyed it.

Briefly

A new screen enhancer for the Spectrum can give 32 lines of 64 characters on screen, says Timedata, which has just brought out HI-T.

The other features include:

- Form filling: inputs can be to any position on the screen without disturbing other data on screen
- Windows: printing and scrolling can be confined to any rectangular area on the screen
- Offset printing to move any characters up by one to five pixels for superscripts, subscripts and so on
- Re-definable print comma spacing for tabulation.

Timedata says the 133 symbols in the program's character set include upper and lower case letters as well as block graphics and UDGs, just as in the Spectrum's standard character set.

HI-T and standard characters can be mixed on the same screen. The Spectrum's usual screen format is 24 lines of 32 characters. HI-T costs £5.95.

Timedata, 16 Hemmells, High Rd, Laindon, Basildon, Essex SS15 6ED

Players of Beaky and the Egg Snatchers, Fantasy's 48K Spectrum game, have to brood, hatch out and rear as many little Beakys as possible through 12 different screens. The game is due out at the end of the month with a Commodore 64 version later. Both cost £6.50. Fantasy's first Commodore 64 game, The Pyramid, uses a faster loading system — called Supercharge by the company — because the standard loading time was nearly 30 minutes.

Fantasy, Fauconberg Lodge, 27A St Georges Rd, Cheltenham, Glos GL50 3DT

BBC speaks to you

Cheetah has brought out a new model of its Sweet Talker for any BBC micro.

Costing £24.95, it plugs into speech socket IC99 inside the computer, needing no soldering or cutting of tracks.

Like the Spectrum version, the new model is based on the allophone system which means any word, sentence or phrase can be written into software.

Sweet Talker for the BBC includes a demonstration cassette.

Cheetah's Spectrum model, costing £29.75, is now compatible with the Microdrive, using I/O port address 31. The company also produces a plug-in RAM pack to upgrade any Spectrum from 16K to 48K.

Cheetah, 24 Ray St, London EC1R 3DJ

Our new charts

Two new charts make their first appearance in this week's issue of Home Computing Weekly. We are adding a top 10 for non-arcade programs — for fans of adventure and strategy games

Acornsoft says its new Aviator program is the first Spitfire flight simulator, chosen because it is more interesting to fly than a modern-day passenger aircraft. Managing director David Johnson-Davies, launching the program at the RAF Museum, Hendon, said the program was also instructional. Written over nine months by Geoffrey Crammond, Aviator runs on the BBC, uses keyboard or joystick and costs £14.95 on cassette and £17.65 on disc.

Acornsoft, 4A Market Hill, Cambridge CB2 3NJ

Sulis Software is offering a demonstration cassette of its program for £1, refunded if an order is placed. A demonstration disc is £1.50. They contain extracts of its educational games available for the Commodore 64, 48K Spectrum and BBC model B.

Sulis, 4 Church St, Abbey Green, Bath BA1 1NL

Kuma has brought out a colour graphics program for the Commodore 64. Called Paintpic, it costs £19.50 it includes pen, brush and text modes, the ability to draw curved and straight line shapes and several other commands.

Kuma, 12 Horshoe Pk, Pangbourne, Berks RG8 7JW

Up to eight chips can be plugged into a new external ROM box — steel with a clear perspex top — and selected by switch. Micropulse is for the BBC computer and comes with a cable and socket connector for £57.44.

Northern Computers, Churchfield Rd, Frodsham, Cheshire

A Pascal compiler for the Commodore 64 have been launched on disc and cassette by Oxford Computer Systems, which says they are complete implementations with added graphics and sound extensions. The cassette is £14.95 and disc £49.95.

OCP, Hensington Rd, Woodstock, Oxford OX7 1JR

Anagrams, new for the BBC micro from Cylindrical Software, is said to generate anagrams of any word of up to 30 keyboard characters — eight with the 16K model — and then print them in alphabetical order, numbered and deleting duplicates. Price: £3.95.

Cylindrical Software, 3/177 College Rd, Moseley, Birmingham B13 9LJ

You could be on our pages

We welcome programs, articles and tips from our readers.

PROGRAMS must always be sent on cassette. Listings are helpful, but not necessary. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.

ARTICLES on using home computers should be no longer than 2,000 words. Don't worry about your writing ability — just try to keep to the style in HCW. Articles most likely to be published will help our readers made better use of their micros by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.

TIPS are short articles, and brief programming routines which we can put together with others. Your hints can aid other computer users.

Competitive rates are paid.

Keep a copy of your submissions and include an SAE if you want them returned. Label everything clearly and give a daytime and home phone number if you can.

Paul Liptrot, Home Computing Weekly, No.1 Golden Square, London W1R 3AB

You're in the pilot's seat of a Boeing 747 jumbo jet with Doctor Soft's program. You may win one in this test of your airline and aviation knowledge

Fly a 747 with Doctor Soft

It's just like the real thing. And Doctor Soft's 747 flight simulator should be — it was written by a man who flies them.

Roger Selby, a British Airways pilot, learned to fly on Austers at the age of 17 and is now licensed for the Boeing 747, VC10 and TriStar. And we've got £1,000-worth of his chart-topping 747 simulator programs to give away — that's 112 prizes for owners of the BBC micro.

You can choose either the cassette, which would normally cost £8.95, or the disc version, usual price £11.95. Place a tick on the coupon if you would like the program on 5¼in disc.

Captain Selby, 38, said of his program: "It's not a game, it's a simulator — a real pilot can actually practice his technique with total navigational accuracy. I tried to sweep away all the pseudo-technicalities to create a realistic atmosphere."

Mr Selby, who has an associate, Peter Chilcott, said he would not give up flying to run Doctor Soft full time. He said: "Nothing will get me away from it. There's nothing like sitting in that left-hand seat up there."

As well as 747, Doctor Soft also has, for the BBC: Wolfpack, Gondor, Gorph (also for Electron), Missile Attack, a word processor called Word Perfect and One Disc Home Office, which includes Word Perfect.

Four more titles are just out: Fruit Machine (also for Electron), Super Tanker, Jump Jet and 3D Convoy.

How to enter

Please read this section carefully — this week's wordsquare competition is slightly different from the others we have published.

You have to find 18 words or phrases used by airlines or in aviation. To give you a start, British Airways starts in the top left hand corner and runs diagonally.

Mark all the words and phrases with a semi-opaque felt-tip pen or by ringing them with a ballpoint pen. Fill in the coupon clearly — if you are a winner it will be used as a label. Disc users should add a tick for the 5¼in disc version of the program.

Then send the coupon and wordsquare to Doctor Soft Competition, Home Computing Weekly, No.1 Golden Square, London W1R 3AB.

Closing date is first post on May 4, 1984.

You may enter as many times as you wish, but each must be on the official wordsquare and coupon, not copies, and in a separate envelope. Do not enclose anything else in the envelope. Incomplete entries cannot be considered.

The first 112 correct entries drawn after the closing date will win the competition. The prizes will arrive from Doctor Soft within 28 days of the publication of the solution and winners in Home Computing Weekly, or earlier.

The rules

Entries must follow the guidance given in the How to Enter section.

Entries will not be accepted from employees of Argus Specialist Publications, K-tel and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies.

The editor's decision is final and no correspondence will be entered into.

COMPETITION

Doctor Soft Competition

Entry Coupon

Name _____

Address _____

_____

_____

_____ **post code** _____

Tick here if you would like the disc version _____

_____

Complete clearly and fully — if you are a winner this will act as a label. Post to Doctor Soft Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Follow carefully the guidance in the How to Enter section.

B	B	R	Q	A	P	P	R	O	A	C	H	E	U	A	H
E	R	N	A	V	I	G	A	T	I	O	N	V	N	J	H
M	W	I	N	G	S	L	E	C	K	R	O	T	A	T	E
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E	U	L	I	O	Z	M	W	E	V	Z	D	Y	B	T	W
O	A	V	H	R	S	T	E	W	A	R	D	E	S	S	I
F	J	A	N	G	D	M	S	U	K	L	C	F	P	V	C
F	A	L	T	I	M	E	T	E	R	R	K	M	Q	Z	K

The Muncher Dave meet... a fruit machine

Muncher by Joe Sayono

You are a spider trying to avoid the Muncher, a creature whose favourite meal is... spiders.

How it works

0-5 set up screen
10-15 set up variables
20-50 main routine, moves you and Muncher, lays eggs and checks for hits and going off screen
60-80 prints how well you did and high score
80-90 instructions
100-105 Muncher eating you sub-routine

It also lays eggs and if you hit one it hatches and eats you. You face the same fate if the Muncher catches up with you.

When this happens your time and score is shown.

Remember, the Muncher is fastest when travelling diagonally.

You have the advantage that you can leave the edge of the screen and come in on the other side and the Muncher can't do this.

Hints on conversion

The main difficulty will be timing for computers without clocks. The POKEing onto screen could be done with PRINT AT or TAB statements.

Here are the main locations:

7680-8165 screen memory map
36876 soprano speaker
36877 white noise
36878 volume control
PEEK(197) checks what key is pressed
PEEK(Q + A + 22*5) checks where you are
38400-38884 colour memory map

Main variables

Q screen memory map
W colour
A,S your column, row
Z,X Muncher's column, row
TI$ clock
R your time
H best time

Mean Dave by Stephen Dallimore

How it works

1-19 set up colours, display title
20-23 set up variables
25-501 set up game graphics, colour and print score etc
503-900 movement of diamond and ball, check for hit, POKE parts of ladders
1000-1040 failure, play Funeral March
2000-2011 jump routine
3000-3009 fall down hole
4000-4009 score increase, game speeds up, sound
5000-5040 if score is greater than high score print score, wait for space bar press for another go
6000-6005 DATA for Funeral March

Can you get to the top of the girders without falling down a hole or being hit by the balls Dave is hurling at you?

These are the keys to use:

L left
semi-colon right
Q jump

When you reach the bottom of the ladder you will be automatically transported up to the next row. If, however, you fall down a hole or get hit by a ball the word DEAD appears above you and the Funeral March is played.

Should you reach the top of

er and Mean

A treat for owners of the unexpanded VIC-20: three fun games to type in

Listing 1 — Muncher

```
0 POKE36879,9:POKE36878,15:S1=36874:S2=36877:Q=7680:W=38400:GOSUB80
1 PRINT"■■■ MOVES YOU LEFT":REM [CLR] [CRSR DWN] [CRSR RIGHT]
2 PRINT"■■K MOVES YOU RIGHT":REM [CRSR DOWN] [CRSR RIGHT]
3 PRINT"■■, MOVES YOU UP"    :REM [CRSR DOWN] [CRSR RIGHT]
4 PRINT"■■/ MOVES YOU DOWN ":FORT=1TO10000:NEXT
5 PRINT"■":M=0
10 A=11:S=7:Z=11:X=20:D=32
15 TI$="000000"
20 POKEQ+A+22*S,32
21 IFPEEK(197)=33THENL=-1:K=0:GOTO25
22 IFPEEK(197)=26THENL=1:K=0:GOTO25
23 IFPEEK(197)=29THENK=-1:L=0:GOTO25
24 IFPEEK(197)=30THENK=1:L=0
25 A=A+L:S=S+K
26 IFA=-1THENA=21
27 IFA=22THENA=0
28 IFS=-1THENS=22
29 IFS=23THENS=0
30 IFPEEK(Q+A+22*S)=87THENGOSUB100:GOTO60
31 IFPEEK(Q+A+22*S)=108THEN60
32 POKEQ+A+22*S,42:POKEW+A+22*S,3
33 M=M+1:IFM=3THENM=0:GOTO39
34 POKES1,253:POKEQ+Z+22*X,D:POKEW+Z+22*X,6:V=INT(1+3*RND(0))
35 IFZ>ATHENZ=Z-1
36 IFX<STHENX=X+1
37 IFZ<ATHENZ=Z+1
38 IFX>STHENX=X-1
39 IFPEEK(Q+Z+22*X)=42THENGOSUB100:GOTO60
40 POKEQ+Z+22*X,87:POKEW+Z+22*X,1:POKES1,0
41 IFV=1THEND=108
42 IFV>1THEND=32
45 GOTO20
55 REM [WHT] [CLR] [7 CRSR RIGHTS] [CRSR DOWN] [4 CRSR LEFTS]
60 PRINT"■■■■■■■■M  S■■■■■"RIGHT$(TI$,4):R=VAL(TI$):POKES1,0
61 IFR>HTHENH=R:PRINT"■■■■■■■■YOU SET A NEW BEST":GOTO65
62 PRINT"■■■■■■■■HIGH IS"H
65 PRINT"■■■■■■■■■■■■■■■■ INSTRUCTIONS (Y / N) ":A$=""
66 GETA$
67 IFA$="Y"THENGOSUB80:GOTO5
68 IFA$="N"THENGOTO5
69 GOTO66
80 PRINT"■■■■■■TRY TO LAST AS LONG AS POSSIBLE BY TRYING TO AVOID THE...."
81 PRINT"■■■■■■■■■■MUNCHER":REM [GRN] [2 CRSR DOWNS]  [3 CRSR RIGHTS]
82 PRINT"■■HO LOOKS LIKE THIS'o'"
83 PRINT"DO NOT TOUCH THE MINES HE LAYS OR ELSE"
84 PRINT"■■YOU CAN GO OUT OF THE  SIDES AND WILL COME  OUT OF THE OPPOSITE   SI
DE"
85 FORT=1TO8
86 POKES2,182:FORY=1TO100:NEXT:POKES2,0
87 POKES2,253:FORY=1TO150:NEXT:POKES2,0:NEXT
88 PRINT"■■■PRESS 'F3' TO PLAY"
89 IFPEEK(197)<>47THEN89
90 RETURN
100 POKEQ+Z+22*X,81:POKEW+Z+22*X,4
101 POKES2,253:FORT=1TO550:NEXT:POKES2,0
105 POKES2,250:FORT=1TO750:NEXT:POKES2,0:POKES2,140:FORT=1TO550:NEXT:POKES2,0:R
ETURN
```

the girders your score increases by 200 points and as it goes up there's a bleeping sound. When you score 200 points you'll hear the sound of a donkey.

Main variables

DF number of bleeps played after score
HI high score
ME men
SC score
UI time loop, decreases by 10 every sheet
AS, QW current position of diamond, ball
C,V direction of diamond, ball
B,L height, length of jump
N,M space behind diamond, ball

Hints on conversion

Conversion to other computers is easy. All you need to know is that GETA$ is the same as A$ = INKEY$, that RESTORE enables DATA to be used again and these POKEs:

7680-8185 start and end of screen memory
38400-38905 start and end of colour memory
36878 colour control
36874-36877 voices 1-3 plus white noise
36879 border colour and screen colour

You have three lives and there is a high score feature.

Listing 2 — Mean Dave

```
1 POKE36879,8:PRINTCHR$(5)
2 PRINT"■"
4 PRINT" ■■■\ /■ ■■■ ▟■ ■  ■
5 PRINT" ■■■ ■ ■ ▙■ ■ ■ ■■ ■
6 PRINT" ■■■   ■ ■  ■■■ ■ ■■
7 PRINT" ■■■   ■ ■■■ ■ ■ ■  ■
8 PRINT"■■■■■■■■  ▟■ ■ ■ ■■■"
9 PRINT"■■■■■ ■ ■ ■ ■ ■ ■ ■"
10 PRINT"■■■■■ ■ ■■■ ■ ■ ■■"
11 PRINT"■■■■■ ■ ■ ■ ■ ■ ■"
12 PRINT"■■■■■■■  ■ ■  "■"  ■■■■"
13 PRINT"■■ CONTROLS ARE(L=LEFT)■■   (;=RIGHT) (O=JUMP)":REM*DALLY*
14 PRINT"■■■■■■■■PRESS SPACE":REMALLARD STU
19 GETA$:IFA$<>" "THEN19
20 HI=0
21 ME=3:SC=0:UI=50
22 REM [CLR]
23 PRINT"■":AS=8145:QW=7819:M=-1:N=-1:C=0:V=1:B=-21:L=2:DF=0
24 REM[HOME][11 CRSR RIGHT][CRSR LEFT]
25 PRINT"■■■■■■■■■■■■■HIGH=■";HI
27 FORT=38400TO38665:POKET,2:NEXTT
28 FORT=38665TO38906:POKET,6:NEXTT
29 FORT=7834TO7852:POKET,209:NEXTT
30 FORT=7685TO7817STEP22:POKET,81:NEXTT
32 FORT=7684TO7816STEP22:POKET,81:NEXTT
35 FORT=7946TO7965:POKET,209:NEXTT
45 FORT=7949TO8037STEP22:POKET,8:NEXTT
46 FORT=38884TO38906:POKET,6:NEXTT
50 FORT=8054TO8072:POKET,209:NEXTT
55 FORT=8164TO8185:POKET,209:NEXTT
60 FORT=7701TO8163STEP22:POKET,81:NEXTT
61 FORT=7834TO8164STEP22:POKET,81:NEXTT
65 FORT=8071TO8071+4*22STEP22:POKET,8:NEXTT
70 FORT=7752TO7757:POKET,209:NEXTT
80 FORT=7850TO7850+4*22STEP22:POKET,8:NEXTT
81 FORT=7700TO8162STEP22:POKET,81:NEXTT
85 POKE7687,81:POKE7709,160:POKE7731,86:POKE7708,78:POKE7710,77
90 FORT=7724TO7727:POKET,160:NEXTT
95 FORT=7724TO7912STEP22:POKET,160:NEXTT
100 FORT=7727TO7815STEP22:POKET,160:NEXTT
130 FORT=7757TO7757+3*22STEP22:POKET,8:NEXTT
140 POKE7747,118:POKE7748,117:POKE7769,246:POKE7770,245
145 POKE7791,95:POKE7792,105:POKE7813,223:POKE7814,233
146 REM[HOME][RVS ON]
150 PRINT"■■MEAN"
154 REM [HOME][CRSR DOWN]
155 PRINT"■■DAVE"
160 POKE36878,15
250 FORT=140TO255:POKE36875,T:NEXTT
260 POKE36875,0
270 FORT=140TO255:POKE36875,T:NEXTT
272 POKE8061,32:POKE8062,32
273 POKE7951,32:POKE7952,32:POKE7841,32:POKE7842,32
280 POKE36875,0
340 POKE8067,32:POKE7957,32:POKE7847,32:POKE7846,32:POKE8066,32:POKE7956,32
401 POKE7843,32
450 REM[HOME][3CRSR DOWN][14 CRSR RIGHT][CRSR LEFT][HOME][4CRSRDOWN][14CL]
501 PRINT"■■■■■■■■■■■■■■■■■■■■SC=■";SC;"■■■■■■■■■■■■■■■■■■■■MEN=■";ME
503 GETA$
505 IFPEEK(QW)=90ORPEEK(AS)=81THEN1000
509 POKEAS,90:POKEAS+N,32
510 POKEQW,81:POKEQW+M,32:POKE36875,255:POKE36875,0
520 IFQW=7831ORQW=8051THENV=22:M=-22
523 POKE7818,81
525 IFQW=7923THENV=22:M=-22
530 IFQW=7941ORQW=8161THENV=-1:M=1
540 IFQW=8033ORQW=7818THENV=1:M=-1
550 IFQW=8143THENQW=7818:V=1:M=-1
700 POKE7823,8:POKE7938,8:POKE8037,8:POKE8159,8
705 IFA$="L"THENC=-1:N=1
710 IFA$=";"THENC=1:N=-1
715 IFC=1THENB=-21:L=3:K=20
716 IFC=-1THENB=-23:L=-3:K=24
720 IFA$="O"THEN2000
810 QW=QW+V
820 AS=AS+C
830 IFAS=8045ORAS=7935ORAS=7825ORAS=8040ORAS=7930ORAS=7821THEN3000
831 IFAS=8039ORAS=7934ORASAS=7929THEN3000
890 IFPEEK(AS)=8THENPOKEAS-1,32:POKEAS+1,32:AS=AS-110:POKE36877,230:POKE36877,0
C=0
897 POKE7894,8:POKE7916,8:POKE7801,8:POKE8115,8:POKE8137,8:POKE8015,8
898 IFAS=7713THEN4000
899 FORT=1TOUI:NEXTT
900 GOTO503
1000 POKEAS-1,132:POKEAS,133:POKEAS+1,129:POKEAS+2,132
1010 FORT=1TO11:READA,B:POKE36874,A:FORE=1TOB:NEXTE
1015 POKE36874,0:NEXTT
1030 REM[HOME][4 CRSR DOWN][14 CRSR RIGHT][CRSR LEFT]
1031 RESTORE:ME=ME-1:IFME=0THENPRINT"■■■■■■■■■■■■■■■■■■■■MEN=■":ME:GOTO5000
1040 GOTO23
2000 POKEAS,32:POKEAS+B,90:FORT=1TO20:NEXTT:POKEAS+B,32:POKEAS+B+B,90:FORT=1TO3
0:NEXTT
2002 POKEAS+B+B,32:POKE36876,240:POKE36876,0
2003 POKEAS+B+L,90:FORT=1TO30:NEXTT:POKEAS+B+L,32
2010 AS=AS+L:IFPEEK(AS)=81THEN1000
2011 GOTO810
3000 POKEAS-1,32:POKEAS+1,32
3001 FORT=ASTOAS+22*5STEP22:POKET,90:POKET-22,32:FORR=1TO30:NEXTR:NEXTT:AS=AS+2
2*5:C=0
3002 POKE36877,240:POKE36877,0:GOTO1000
4000 POKEAS,90
4001 FORT=1TO200:PRINT"■■■■■■■■■■■■■■■■■■■■";SC:SC=SC+1:POKE36876,240:POKE36876,
0:NEXTT
4002 POKE36875,240:FORT=1TO200:NEXTT:POKE36875,220:FORT=1TO200:NEXTT:DF=DF+1
4005 IFDF=3THENPOKE36875,0:UI=UI-10:GOTO23
4009 GOTO 4002
5000 IFSC>HITHENHI=SC:PRINT"■■■■■■■■■■■■■HIGH=■";HI
5007 PRINT"■■■■■■■■■■■■■■■■■■■■GAME OVER"
5008 PRINT"■■■■■■■■■■■■■■■■■■■■■PRESS SPACE■"
5009 FORT=1TO300:NEXTT
5010 PRINT"■■■■■■■■■■■■■■■■■■■■GAME OVER■"
5015 FORT=1TO300:NEXTT
5020 GETA$
5030 IFA$=" "THEN21
5040 GOTO5007
6000 DATA 236,395,236,190,236,100,236,350,239,200,230,100,238,200,236,150,236
6005 DATA150,235, 120,236,500,0,0
```

Listing 3 — Fruit Machine, part 1

```
 1 POKE36869,255:POKE36879,29:PRINT"■■■■■■■PLEASE WAIT...■"
 2 POKE56,28:POKE52,28
 3 FORI=7168TO7679:POKEI,PEEK(I+25600):NEXT
 4 FORI=7168TO7679:READA:IFA<>-1THENPOKEI,A:NEXT
 5 PRINT"■■■■■■■■THE DJS BANDIT"
 6 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■WITH RANDOM NUDGES■■■"
 7 PRINT"■■■YOU START WITH BETWEEN10 & 50 CREDITS"
 8 PRINT"■1 SPIN COSTS 1 CREDIT"
 9 PRINT"■■A CHERRY ON REEL1 PAYSEVEN MONEY.A CHERRY ON"
 11 PRINT"■■REEL1 & REEL2 PAYS 3-1"
 12 PRINT"■ 3 OF A KIND PAYS 5-1"
 13 PRINT"■■■■■DJS PAYS JACKPOT■■■"
 14 PRINT"■■ 500+ CREDITS BREAKS        THE BANDIT"
 17 PRINT"■■■■   PRESS SPACE BAR    "
 18 GETA$:IFA$<>" "THEN18
 19 PRINT"■■■■■■■■■■LOADING GAME■"
 20 POKE198,10:POKE631,131:POKE36869,240:END
 50 REM BELL
 51 DATA3,2,7,15,28,29,29,28,192,64,224,240,120,134,134,120
 52 DATA29,29,28,31,63,127,28,8,184,134,120,248,252,254,0,0
 53 REM CHERRY
 54 DATA0,24,60,30,14,3,21,57,0,48,120,240,224,128,60,56
 55 DATA125,57,17,3,7,3,1,0,124,56,16,126,192,128,0,0
 56 REM LIME
 57 DATA0,15,31,63,127,255,255,127,0,192,248,252,254,245,238,254
 58 DATA63,31,15,69,69,69,69,117,252,240,192,247,84,87,84,87
 59 REM BAR
 60 DATA0,255,170,255,142,181,181,140,0,255,85,255,99,170,170,85
 61 DATA181,181,141,255,255,170,255,0,170,170,170,255,255,85,255,0
 62 REM 'D'
 63 DATA0,63,63,48,48,48,48,56,0,128,192,224,112,48,48,56
 64 DATA56,56,56,56,56,63,63,0,56,56,56,120,248,224,128,0
 65 REM 'J'
 66 DATA0,3,3,0,0,0,0,0,0,224,224,96,96,96,96,112
 67 DATA0,0,24,24,28,15,7,0,112,112,112,112,240,224,192,0
 68 REM 'S'
 69 DATA0,3,7,14,28,24,28,15,0,224,240,56,24,0,0,240
 70 DATA7,3,56,60,63,31,7,0,248,252,60,60,252,248,224,0,-1
```

Fruit Machine by D.J. Saunders

My fruit machine game has many of the features of the real-life one-armed bandit. You're asked to start with 10-50 credits — how much will you risk?

The program is in two parts and the second will LOAD automatically. The first defines the graphics and contains instructions. The second defines the screen area and starting credits.

How it works part 2

30 checks whether player or bank is broke
34 gets keyboard response
35-99 random spin and first reel value
101-116 random spin and second reel value
120-140 random spin and third reel value (the REM lines are to make the jackpot harder to get)
200-216 check for win
220-262 nudge routine
285-295 win routine
325-328 jackpot routine
365-375 play tune
400-405 lose routine
500-705 spin routine
800-803 broke routine

Variables

A,W flags
R characters
I character colours
P screen position
F,G,H screen PEEKs for checking win
CO when added to P gives screen colour location
CR credits

● As usual, we have inserted REMs in the lines above those in which Commodore control characters appear. These are only for use as a guide while you are typing in the programs. Use abbreviations for the keywords wherever you can. They are given in the manual.

Listing 4 — Fruit Machine, part 2, LOADs automatically after part 1

```
 1 FORI=7168TO7679:POKEI,PEEK(I+25600):NEXT
 2 PRINT"■■■■■■■■ HOW MANY CREDITS DO  YOU WANT TO TART WITH?"
 3 PRINT"■■■(BETWEEN 10 & 50)"
 4 INPUTCR:IFCR<10ORCR>500RCR<>INT(CR)THEN2
 5 PRINT"■■■■WHEN READY SHOWS PRESS    'Z'TO SPIN"
 6 PRINT"■YOU START WITH"
 7 PRINTCR;" CREDITS"
 8 FORI=0TO3500:NEXT
 9 POKE36879,30
 10 PRINT"■■■■■■■■■■■■■■R1■R2■R3■■
 11 PRINT"■■■■■■■■■■■■■■■■■■■
```

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(For any ZX Spectrum)

You command the Spectrum Chopper X-1 Gunship—Your mission is to repel invading forces and save the earth. An action packed original game in full machine code.

R.R.P. **£5.50**

GALAXY WARLORDS
(For any ZX Spectrum)

A fast action machine code space game in which you defend your position as Galaxy Warlord against attacking enemy starships. Both your patrol-ship and rockets are steerable. The enemy never seem to give up! Full colour action graphics and sound for just

R.R.P. **£5.50**

JUNIOR ARITHMETIC
(For any ZX Spectrum)

An excellent educational program for 6–9 year olds. The fun way to learn and practice Addition, Subtraction, Multiplication and Division. Mistakes are corrected and explained, along with a running total of correct answers.
Terrific value at just

R.R.P. **£4.95**

SPECTIPEDE
(For any ZX Spectrum)

Enjoy the thrill of this full machine code arcade game. Battle to keep the Spectipede at bay but watch out for a very unpredictable spider which is out to get you. For 1 or 2 players with top score and on-screen high score feature.

R.R.P. **£5.50**

GOLF
(For any ZX Spectrum)

Enjoy a game of golf in the comfort of your own home! With the choice of a 9 or 18 hole course and the challenge of Fairway, Rough, Trees, Bunkers, Water & Green. Displays are in realistic colour graphics with full score cards. No two games are alike!

R.R.P. **£3.75**

GNASHER
(For any ZX Spectrum)

The "famous" arcade maze game with fast machine code action, excellent graphics, colour and sound. Eat-up all the dots before the Ghosts eat you, or beat them to an energy pill which will allow you to eat them! Hours of addictive fun with on-screen scoring and high-score tape-save capability for just

R.R.P. **£4.95**

STAR TREK
(For 48K Spectrum only)

One of the original computer space games, but this program has many up-dated features normally only found on larger computer versions. Test yourself as Starship Commander as your mission takes you to the outer reaches of the Galaxy to protect Federation Space, the Starship and yourself! Excellent value at

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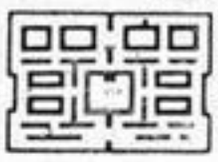
SPECTRUM ORWIN SOFTWARE ZX-81

FOR 16K SPECTRUM
(will also run on 48K Spectrum)



CASSETTE A
GHOST GOBBLER
Eat the ghosts before the ghosts eat you. Eat a star and you can chase the ghosts for a while.

ALIENKILL Control lasers, rockets and a force-field to stop the aliens from landing.
MOUSETRAP Trap the mouse in the corner but not anywhere else.
REVERSI A game of skill with simple rules but sophisticated tactics. Play against the computer.
LASER DEFENCE Control the laser sight to shoot down the alien ships. Machine code sound routines.

Ten programs for £6

TANK BATTLE For 2 players simultaneously or play against the computer. Each player has 2 rotate controls and move and fire controls. The tanks fire steerable missiles.
PHOEBUS A puzzle.
BLACKSPOT Gobble the stars and avoid running into black spots created by crossing your own path.
CUBE Manipulate a cube any size from 2×2×2 to 7×7×7.
MINEFIELD Collect the crowns while avoiding the mines and the electrified fence.

plus an extra . . .

GRAPHIC DEMO Did you know your Spectrum could do all this!?

EDUCATIONAL COMPENDIUM FOR 16K/48K SPECTRUM £6
All these programs on one cassette.

These programs were developed for use in a Junior School and have been in regular use there for some time. Older people also find them interesting and fun.

TORTOISE GRAPHICS: an educational graphics language.
16K version commands include: forward, left and right through a specified angle, wipe, pen up and down, paper and ink colour, macro, edit.
48K version has extra commands including: backward, quit, cancel, printer and tape commands, auto, home, variables, loops.

TORTRAIL & TORTMAZE: 16K games using the forward, left and right commands. These are good for learning a feeling for distances and angles and are fun to play.
REVEAL: an addictive 16K word game. A piece of writing has had its letters rubbed out and you have to find out what they are. You buy letters or try to predict them. Included are 20 textfiles to be solved and a textmaker which will let you input your own text and store it on tape for someone else to solve.
EQUATION INVADERS: a 16K game to make simple equations more interesting.

CENTIPOID PLUS THREE for 48K SPECTRUM. £6

CENTIPOID (machine code).
Centipoid is a full-feature arcade game with mushrooms, spiders, webs, scorpions, gobblers, indestructible dead segments of centipoids that drop down on you, and, of course, the centipoids themselves.
You can choose your own control keys. It is playable from the keyboard or using any joystick interface which, like AGF Interface II, makes the joystick behave like keys on the keyboard.

Plus these games in Basic for the 48K Spectrum on the same cassette.

PANIC

HOUND

3D TIC TAC TOE
A 3D game of skill played against the computer.

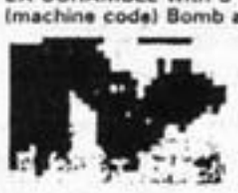
CASSETTE 1: eleven programs (including 7 in machine code): React, Invaders, Phantom Aliens, Maze of Death, Planet Lander, Bouncing Letters, Bug Splat, I Ching, Codebreak, Robots, Basic Hangman.
for 1K ZX-81 £3.80

CASSETTE 2: ten games in Basic: Reversi, Awari, Laser Bases, Wordmaster, Rectangles, Crash, Roulette, Pontoon, Penny Shoot, Gun Command.
for 16K ZX-81 £5

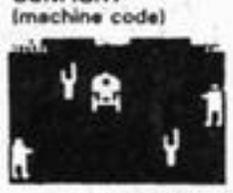
CASSETTE 3: eight programs (including 1 in machine code): Starship Trojan, Startrek, Princess of Kraal, Battle, Cube, Kalabriasz, Secret Messages, Martian Cricket.
for 16K ZX-81 £5

CASSETTE 4 8 games for 16K ZX-81 £6

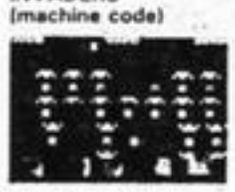
ZX-SCRAMBLE with 3 stages. (machine code) Bomb and shoot your way through the fortified caves.

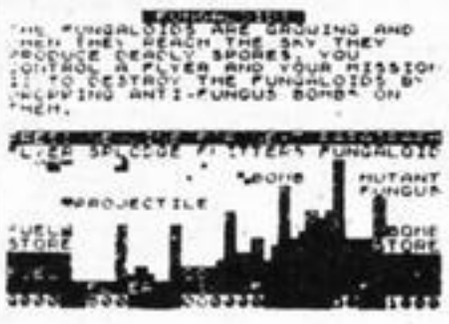


GUNFIGHT (machine code)



INVADERS (machine code)





GALAXY INVADERS (machine code)
Fleets of swooping and diving alien craft to fight off.

SNAKEBITE (machine code)
Eat the snake before it eats you. Variable speed (very fast at top speed).

LIFE (machine code)
A ZX-81 version of the well known game.

3D TIC-TAC-TOE (Basic)
Played on a 4×4×4 board, this is a game for the brain. It is very hard to beat the computer at it.

"quantity as well as quality"
Sinclair User, Oct '82

"if each game was on a separate tape and selling for £5 each I would still recommend them"
ZX Computing, Oct/Nov '82

"Easy to operate, graphically impressive and good value for money."
The Times, 11th Dec '82

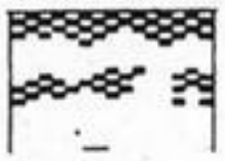
"Definitely good value for money at £6 . . . A smooth clear display and a relatively fast response from the keys. Graphics are as good as you will ever get on the 81."
What Micro? Nov '83

7 of the 8 games are in machine code, because this is much faster than Basic.
(Some of these games were previously available form J. Steadman).

CASSETTE 5 8 games for 16K ZX-81 £6

BYTE-MAN (machine code)
(previously available from Mindseye)

BREAKOUT (machine code)



PLANETOIDS (machine code)
Rotate, move, fire and hyperspace controls. Wide range of choice of speed and difficulty.

DODGEMS (machine code)
Dodge the computer's car while eating the dots.

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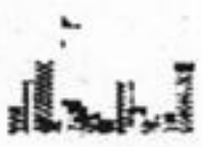
Make your fortune on trading voyages in the Mediterranean and beyond.

SPACE RESCUE (machine code)
(previously available from Mindseye)

BLITZ (machine code)



"New polish on old favourites.
. . . the quality of the software and the smooth action displays created on the screen make the programs worthwhile for anyone who has a ZX-81 and plays games using it.
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Sinclair User, Sept '83

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All the games are of very high quality and would cost £4 or £5 if sold separately . . . Many of the other software houses could learn a lesson from these."
What Micro? Games supplement, Nov '83

7 of the 8 games are in machine code because it is much faster than Basic.

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HCW57

Send your letter to Letters, Home Computing Weekly, No.1 Golden Square, London W1R 3AB. Don't forget to name your computer — the best letter could win £5-worth of software. Got a problem with your micro? We'll soon be starting a queries page, so send your technical questions to Queries at the above address

Commodore problems 1

I must wholeheartedly agree with the letter from Sheila Maguire (Commodore made us buy an Atari, (HCW 53) as I have had two 64s and have been waiting over a month for a replacement. I purchased the 64 from Rumbelows and they have not been able to supply me with another.

On speaking to the manager he informed me that I am a member of quite a long list and that I am lucky to be only waiting for my third 64. I am also on my second Datasette recorder. My first refused to load pre-recorded Commodore software (e.g. Stellar Wars and Spirates). The cassette unit took me two months to be replaced.

The only conclusion I can draw is that Commodore, once they have got your money, are just not interested and, as for John Baxter, his remarks only endorse this or he has his head buried in the sand.

Paul Edwards, Runcorn, Cheshire

Commodore problems 2

Having read the letter from Sheila Maguire (HCW 53) and the response from Commodore, I decided I had to write. I too experienced faulty 64s, September to November 1983 (three in fact), and even now I am not completely satisfied.

I bought my computer through mail order and I also bought BASIC part 1. This was totally useless and was returned.

The book issued with the 64 is a joke. Not only is it full of errors, it doesn't give any real help to the complete novice.

The capabilities of the 64 are great, if only I could find out how to use them. I don't even know how to use the hi-res mode for drawing geometric shapes.

I am sure Commodore will give their usual bland excuses. Why, oh why, don't they employ someone who is really concerned with customer relations?

Someday, not thanks to Commodore, I will be able to utilise the full potential of my 64. Until then I will just hope that someone at Commodore will wake up and take notice of the adverse publicity I read in various magazines.

K.J. Morrison, Birkenhead, Merseyside

Commodore problems 3

On the letters page in HCW 53 I read a reply from John Baxter, marketing manager of Commodore U.K., that if Sheila Maguire had returned the faulty Commodore 64 direct to Commodore the problem could have been resolved immediately. I returned my Commodore 64 and cassette recorder direct to Commodore as it would not save any programs typed in on to cassette.

I posted it on February 2 and Commodore received it on February 8. I phoned them on March 3 only to be told that it would not be looked at for another week. I phoned again on March 16 only to be told the same thing again. If this is what Mr Baxter calls "immediately" then no wonder Sheila Maguire bought an Atari. As the Commodore 64 worked perfectly apart from the mentioned fault I am very pleased with it, but as for Commodore's after sales service, I am appalled.

Keep up the good work.

K. Weston, Christchurch, Dorset

Commodore problems 4

I would be very grateful if you could help me with a problem regarding the Commodore 64.

In approximately four weeks I have had no less than eight Commodores. This is not a joke and I think it needs expert guidance. I have written to Commodore but they haven't replied. Unlike the person in HCW 53 who had not done all the things right I am not a closet case and I know how to operate a computer. This is not a reflection on that person, but on Commodore themselves. Here is a rundown on the problems:

Computer 1 worked for 30 minutes, then the power pack got very, very hot and the computer wouldn't function. Left to cool down, but still no luck. Tried again in the shop. No luck

Computer 2 didn't work

Computer 3 didn't work

Computer 4 would not return cursor. Tried in shop, at home and everywhere but no luck

Computer 5 didn't work

Computer 6 had two @ keys and no * (asterisk) key

Computer 7 faulty leads

Computer 8 had one faulty lead. Replaced lead. Computer now works, but the cassette only loads when it feels like it

I suspect the cassette recorder is not new as there is a mark on the front, no booklet and the silver wire that comes out of the socket has been cut off.

I don't want to wait much longer because I am paying interest on something that doesn't work. I have paid about £168 up to now and I still owe £70, plus whatever more interest they put on.

I might even go an buy another Oric at this rate.

S. Blease, Stretford, Manchester

Commodore praise 1

I feel I must raise my tiny voice in defence of the Commodore 64. My son bought this micro recently and I (a mumsy lady of middle years) sneak a go at it as often as housewifery will allow.

It is a gem and I so wish I could afford books of programs or even, when my ship comes in, Simon's BASIC, to extend my usage.

Totally ignorant, having left school at the age of 15, this lovely efficient machine is educating me and stretching my shrinking brain. I never have any problems with it. It absolutely adores me and even tried to sort me out when I typed in your Speed-Reading program.

While I'm sorry Mrs Maguire had bad experiences, I must say that Commodore has a very satisfied user in me. My son, on the other hand, may have to get another micro because mum has taken over.

I'm saving pennies for extras to take me ever onward but I reckon it will take a long time, it is all too dear for me, but oh the joy.

Vera Conetney, Shrewsbury, Shropshire ■

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Commodore praise 2

Having read letters in your magazine from people who have had little or no success with mail order or in writing to companies, and further spurred on by Sheila Maguire (HCW 53), I decided to bring you some good news.

Due to two unfortunate accidents I broke two keys off of my VIC-20. I wrote to Commodore on March 12 asking them if they could supply me with replacements for these two keys. I didn't expect them to be willing to supply me and was expecting to have to wait for a couple of months for a letter suggesting I take my VIC to my local dealer.

However, on March 15 I received a pro-forma invoice from Commodore stating that they would need samples of the broken keys and that the new keys would cost £2.30.

My faith in computer firms has been restored. Keep up the good work, Commodore.

Henry Shinners (another proud VIC-20 owner), New-Market-on-Fergus, Co. Clare, Ireland

Commodore has promisd an extensive reply which will appear on the letters page in a future issue.

Cable query

Congratulations on a good, comprehensive magazine that is extremely "reader friendly". The game listings for the Commodore 64 have been exceptional to say the least. Thanks for not ignoring the Commodore machines like other so-called computer magazines that are twice as dear.

I got my 64 at Christmas and rarely find a day when I'm not tinkering on it working out various programs for myself. Despite the complaints that the BASIC on the machine isn't all that easy I've found it quite easy to achieve all the effects I want in relatively small programs.

My one niggle is not actually against the machine. The video cable that connects the computer to my TV is faulty in that the end which fits into the computer has a loose connection — the plastic casing has cracked and seems to have caused the actual wire inside to break also.

By keeping the cable in a certain position I can get a good TV image but obviously I would like to get it replaced.

Not wanting to take the whole unit back to where I bought it I contacted Commodore to see if they could tell me where to get a new one. I received the ominous "no reply" — that insiduous ailment seemingly all computer companies and software houses suffer when we are in great need of an answer.

Further inquiries have failed so I turn to you HCW to ask if your readers know of anywhere where I might find a new video cable for my 64.

Andy Clarke, Baddesley-Ensor, near Atherstone, Warks

Can any readers help Andy Clarke?

Checkout staff plan jail break

My friend Sandra came up to me at work and said softly: "Yes, I know if I get drunk I can get taken to hospital but there must be an easier way. I've tried bribes and Allan even attacked the sergeant, but got thrown in the cells for his trouble."

At that point we became aware of the expressions of the ladies waiting in my checkout queue at Sainsbury's. We tried to explain about Urban Upstart but the lady writing her cheque was very wary and the next few customers counted their change very carefully.

Would Richard Shepherd please clear my name?

Marilyn Brazier, Warndon, Worcester

Richard Shepherd said: "I will be sending Marilyn an award for bravery above and beyond the call of duty in Sainsbury's, along with a hint sheet! By the way, I have the same trouble in supermarkets."

For other Urban Upstarts trapped in Scarthorpe, the company offers the hint sheet in return for an SAE to Richard Shepherd Software, Elm House, 23-25 Elmshott Lane, Cippenham, Slough, Berks.

Imagine: it's up to you

Imagine Software made a double impact in the pages of HCW 54. Firstly, it was reported that the prices of its software will rise to around £15 and, secondly, in the letter that the directors wrote to you, headed Magazine must act over piracy.

I find it difficult to reconcile the two. Fantastically high prices will ensure more piracy. It must be borne in mind that the majority of users of games software are people with no incomes, i.e. children. High prices will therefore raise the demand for copies.

Imagine hopes to counteract the proliferation of piracy by pleading with the media to do something about it. The media can only make a comment, however cogent.

Imagine Software: it is up to you to do something about it by keeping your products realistically priced.

Chris Joannes, London E3

Imagine and whiz kids

I feel I really must comment on the letter from Imagine (HCW 54). It goes on and on, blaming anyone and everyone for what I detect must be a cut in its income.

It does not seem too long ago since articles appeared in the media telling us how much these so-called whiz kids were being paid for their creations. Yet I notice, with great frequency, that a lot of software on the market is actually a variation of a variation of an arcade game. How many versions of Frogger, Pacman, Skrambler and many others are there? Each company selling these claims they are original, so where does "piracy" start?

Books are another sore point. I have a Commodore 64 and several books for it are no more than excerpts from the Programmer's Reference Guide. But the authors and publishers blatantly print in these books "all rights reserved".

E. Troughton, Blackburn

BEYOND

CHALLENGING SOFTWARE

Less than human, far more than mere computer
The *Psytron* controls the massive Betula 5 Installation. When the attack comes, it will cope with defensive demands which would leave a human brain unhinged, computer circuits scrambled.
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Ten screens of stunning graphics, animation which makes other programmers gasp, a 20 page booklet of hints, tips and help with the discovery of each of six levels of play.

"How long can you survive the Final Conflict? A true Psytron would last an hour and a Sinclair Q.L. goes to the first person to match that feat."

Overthrow evil, blast the bombers

A batch of new games play-tested by our reviewers. Read before you buy

Klartz and the Dark Forces Dragon 32 £9.95

Dungeon, Milton Hse, St John St, Ashbourne, Derbys

The title puts you in the mood for this mammoth adventure. Set in the time after (what?), you are a member of the group pledged to overthrow the evil Klartz. You have been chosen to pilot the time capsule to collect special relics that will aid your task.

This adventure is different to most — you have the choice of time zones to enter at first. Each is almost a whole adventure in itself and, with five different zones, the program is certainly large enough to keep the most enthusiastic adventurer busy for some time.

The game is headed by a machine code display while loading. Using some excellent programming, it has been written without much chance of anyone breaking and listing the program. If you do press the Break key and do not type CONT afterwards the game is lost and can never be listed. This is necessary when there is a prize of a Dragon disc drive for the first person to map out all the time zones.

I have spent many hours but this is one tough adventure to crack. I wish you good luck. **C.G.**

instructions	60%
playability	85%
graphics	N/A
value for money	80%

★ ★ ★ ★

Cylon Attack Electron £7.90

A&F, Canal Side Industrial Estate, Woodbine St, Rochdale, Lancs

You sit in the cockpit of the only fighter on board the earth supply ship. Your mission is to defend the mothership against the Cyclons.

You have instruments to give you up-to-the-minute reports on your shields, laser power and fuel. Directly above you is the long range radar to warn of aproaching fighters.

Once you have a cylon in view, you must line it up with your targeting computer and fire your laser with the space bar. When fuel runs low you may return to the mothership to refuel.

Complete instructions are given in the program. There is a choice of keys to suit left and right handed players and a joystick option.

There is also a pause facility to allow you to have a rest. The 3D graphics are brilliantly laid out, especially taking off and landing sequences.

Your high-score could win £500 from A&F. **M.B.**

instructions	95%
playability	95%
graphics	100%
value for money	90%

★ ★ ★ ★ ★

Operation Gremlin 48K Oric £6.95

Wintersoft, 30 Uplands Pk Rd, Enfield, Middx.

The setting is a large space city, overrun by hordes of mutant gremlins. You have been delegated to clean up by destroying the invaders and their spawn. To do this your force of eight troopers have to carefully explore the city and attack the enemy with weapons left lying around. There are many features to the game and you have to puzzle out the best tactics and weapons to use. Complications are that various emergencies arise in your support systems, and these must be quickly dealt with.

You can control any of your troopers individually while he or she is alive, and score points for killing gremlins. There is a fixed time limit and any of nine skill levels can be selected.

The display consists of an impressive scrolling plan of the city with you at the centre. Colour and sound are well used to enhance the battles and special effects.

A game that needs time to play and careful thought for a high score. It makes a pleasant change and offers the chance to exercise your brain as well as fingers. **P.S.W.**

instructions	75%
playability	85%
graphics	70%
value for money	80%

★ ★ ★ ★

3D Bomb Alley 32K BBC £7.95

Software Invasion, 50 Elborough St, Southfields, London

A simulated air-to-sea battle, much influenced by the Faulklands war. The aim is to shoot down incoming jet bombers before they drop their all-too-accurate bombs, destroying your fleet.

The cassette was chained in and loaded every time without trouble, though it takes a long time to do so. The screen is well laid out with a good display of the battle zone. Planes are fired at by lining up crosswires. These I found somewhat inaccurate — to ensure a kill you have to aim low. This could do with improvement. Sound is very good — I liked the way the plane explosions are proportional to the distance from you.

The game played well with keyboard or joysticks and, after some practice, I was saving my fleet quite well. It gets more difficult as time goes on in that multiple waves of bombers sweep in, first in ones then twos and threes. It's extremely addictive and I can't stop playing it. It's the best game I've seen so far for the BBC. I'm going back to the battle now. Disc: £11.95. **J.H.**

instructions	75%
playability	95%
graphics	90%
value for money	95%

★ ★ ★ ★ ★

Wilfred the Hairy 48K Spectrum £5.50

Microbyte, 19 Worcester Cl, Lichfield, Staffs

A game of strategy, based on domination of the world. After a long time loading several blocks of program and data, a world map is revealed. Two castles, one in North America, the other in Africa, are the bases for Olaf and Wilf. You adopt one name, your Spectrum the other.

The game is won or lost by occupying Europe, or by grabbing all three of the other continents. But as you do so, you use ammo, and need to return to base for more. You cannot enter a continent if your opponent is well stocked with ammo, and if you need to cross the sea, you may well be involved in a battle via a nice inset arcade-style game involving cannon and ships.

This version is much smoother than its BASIC predecessor. Even so, the lack of a title screen, together with slow response, is disappointing. When over, the computer resets, and the program disappears. Screen messages are rather crude, too.

The concept is a good one, but this isn't up to the standard of finish I expect from a commercial product. **D.M.**

instructions	60%
playability	60%
graphics	70%
value for money	60%

★ ★

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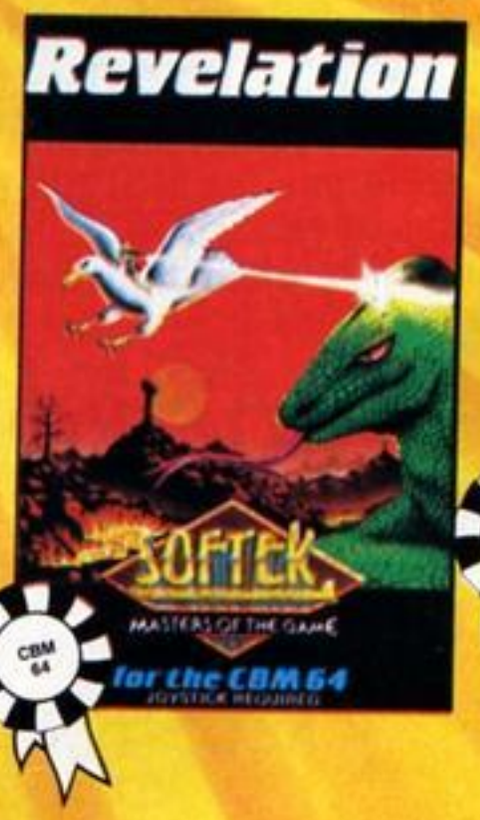

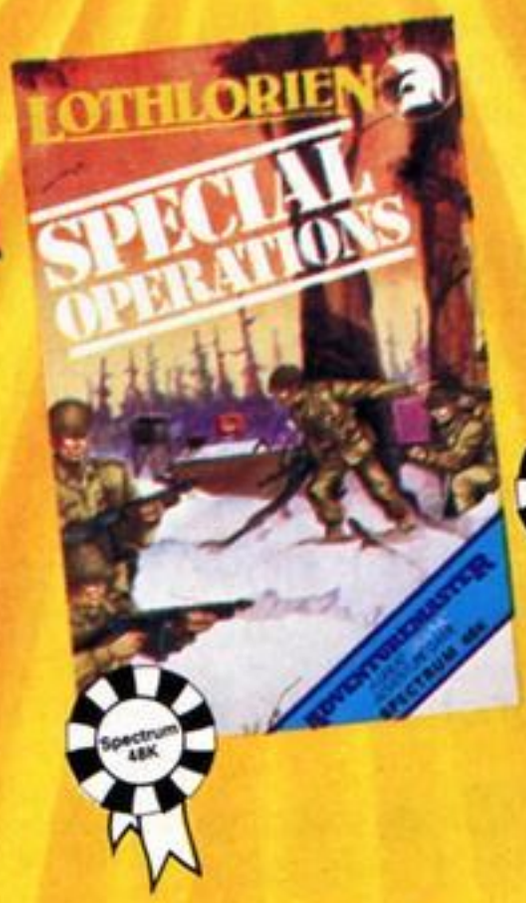

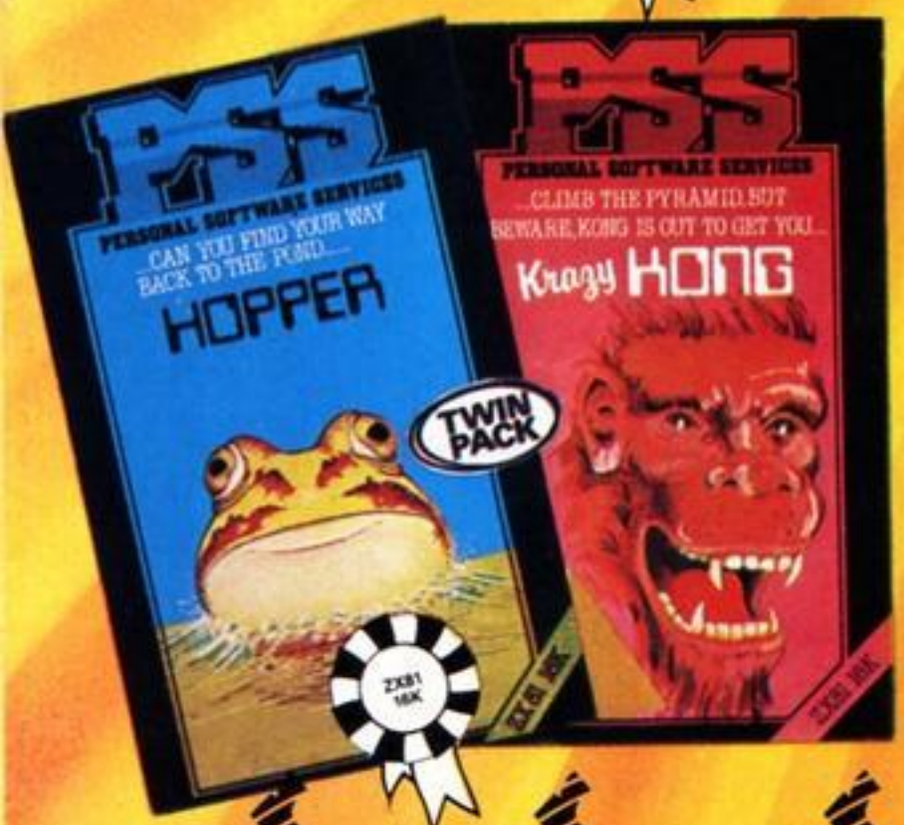

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These screens are just a sample to show the style of the program:

But that's not all, not by a long way. This program **automatically** raises a corresponding debit or credit for every entry, and will even open a new account if an entry features an unrecorded account name.

Information can be manipulated in various ways — you can call up your bank or credit card account, or analyse expenditure according to a variety of categories which you assign to the transactions. Instant Account balances can be listed at any time. A great time saving feature of this program is that account names and transaction descriptions need only be recorded **once**, as all the input fields will scroll existing files. There are many, many more features which make this the most powerful finance package around, we even include a test file for you to experiment with before getting started.

★ ★ ★ ADDRESS MANAGER ★ ★ ★

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by the ASP Market Research Group

ARCADE

1	Manic Miner	Bug-Byte	Spectrum
2	Jet Set Willy	Software Projects	Spectrum
3	Atic Atac	Ultimate	Spectrum
4	Falcon Patrol	Virgin	Spectrum
5	Chequered Flag	Sinclair	Spectrum
6	Fighter Pilot	Digital Integration	Spectrum
7	3D Death Chase	Micro Mega	Spectrum
8	Pedro	Imagine	Spectrum
9	Paratroopers	Rabbit	Spectrum
10	Flight 015	Ferranti & Davenport	VIC-20

NON-ARCADE

1	Twin Kingdom Valley	Bug-Byte	Spectrum
2	Hobbit	M.House	Spectrum
3	Twin Kingdom Valley	Bug-Byte	CBM 64
4	Transylvanian Tower	Richard Shepherd	Spectrum
5	Hobbit	M.House	CBM 64
6	Battle 1917	CCS	Spectrum
7	Snooker	Visions	VIC-20
8	Demon Knight	ASP	Spectrum
9	German is Fun	CDS	Spectrum
10	Holy Grail	Doctorsoft	Spectrum

Compiled with the assistance of Britain's leading software distributors, including: Pinnacle, SDL, PCE, Websters, PCS and Software Centre.

SPECTRUM

1	Atic Atac	Ultimate (2)
2	Lunar Jetman	Ultimate (5)
3	Ant Attack	Quicksilva(4)
4	Chequered Flag	Psion (1)
5	Jet Set Willy	Software Projects (-)
6	Scuba Dive	Durrell (3)
7	Pogo	Ocean (-)
8	Buga Boo (The Flea)	Quicksilva (-)
9	Jetpac	Ultimate (6)
10	Flight Simulation	Psion (7)

COMMODORE 64

1	Hunchback	Ocean (-)
2	Manic Miner	Software Projects (1)
3	Crazy Kong	Interceptor (4)
4	Odyssey	K-tel (-)
5	Cosmic Convoy	Taskset (-)
6	Buga Boo (The Flea)	Quicksilva (-)
7	City Attak	K-tel (-)
8	It's only Rock 'n' Roll	K-tel (-)
9	Hungry Horace	M.House (-)
10	Chinese Juggler	Ocean (10)

DRAGON 32

1	Chuckie Egg	A&F (1)
2	Eight Ball	Microdeal (7)
3	Kriegstiel	Beyond (2)
4	Chocolate Factory	Minits (4)
5	North Sea Oil	Shards (3)
6	Hungry Horace	M.House (10)
7	Up Periscope	Beyond (9)
8	Pedro	Imagine (5)
9	Mystery of the Java Star	Shards (6)
10	Frogger	Microdeal (-)

Compiled by W. H. Smith and Websters. Figures in brackets are last week's positions.

VIC-20

1	Flight 015	Ferranti Davenport (1)
2	Crazy Kong	Interceptor (2)
3	Wizard and the Princess	M.House (7)
4	Emmet Attack	CBM (3)
5	Choc-o-bloc	Paramount (5)
6	Jetpac	Ultimate (9)
7	Snowman and Maths Maze	Commodore (6)
8	Arcadia	Imagine (-)
9	Gridrunner	Llamasoft (-)
10	M.L.B.A.T.E.T.	Llamasoft (8)

HOME COMPUTING WEEKLY

BRITAIN'S BRIGHTEST

ZX81

1	Skramble	Quicksilva (3)
2	Asteroids	Quicksilva (3)
3	Krazy Kong	PSS (1)
4	Football Manager	Addictive (10)
5	Defenders	Quicksilva (4)
6	Invaders	Quicksilva (5)
7	Vu-File	Sinclair (7)
8	Vu-Calc	Sinclair (8)
9	Hopper	PSS (9)
10	ZX Assembler	Bug-Byte (-)

Help ne kanga frogs

Now's your chance to help save some wildlife. Skippy the kangaroo and several frogs are under threat

Tasmanian Devil by David Arts

You are Skippy the bush Kangaroo, happy and content to hop around a maze picking up the truffles that are littered about the place.

However, you must keep out of the way of the Tasmanian Devil, a nasty little creature with sharp teeth who, far from being interested in truffles, just loves the odd Kangaroo for supper. And if he lands on you, you're on the menu!

How it works

1-15 preliminary and instructions
16-19 initialise
27-99 cursor detection
1000 kangaroo movement left
1100 kangaroo movement right
1200 kangaroo movement up
2000 devil movement
2040 tests for devil's co-ordinates matching
2540 kangaroo's Funeral March routine if they match
3000 instructions and Tie My Kangaroo Down, Sport routine
4000 score evaluation and Waltzing Matilda theme if score is maximum possible (i.e. 369)
6000 creates and generates maze
7000 user-defined graphics

Because of his sharp teeth the Devil can tear through hedges. But all is not lost, for positioned strategically around the maze are four "toasties".

If you pick up a toastie then that mean fella is sent back to his lair at the top left hand corner of the screen. But beware, he comes after you again and in what seems like no time at all, he's right back on your heels chasing you.

If you manage to survive and eat all the truffles and toasties, then you score 369 and are treated to a few bars of Waltzing Matilda. If you are eaten the Funeral March plays and your score up to that sad moment is displayed and evaluated.

The cursor keys 5, 6, 7 and 8 control your movement. Good Luck!

Variables

S score
HS high score
X,Y kangaroo Skippy's co-ordinates
G & I randomised variables to control devil's speed
M$ (X,Y) array for maze

User defined graphics:
GRAPHIC A (CHR$ 144) kangaroo moving left
GRAPHIC B (CHR$ 145) kangaroo moving up or down
GRAPHIC C (CHR$ 146) kangaroo moving right
GRAPHIC E (CHR$ 148) Devil

Other symbols:
CHR$ 42 truffle score/point
CHR$ 35 (hash) toastie score 15 points

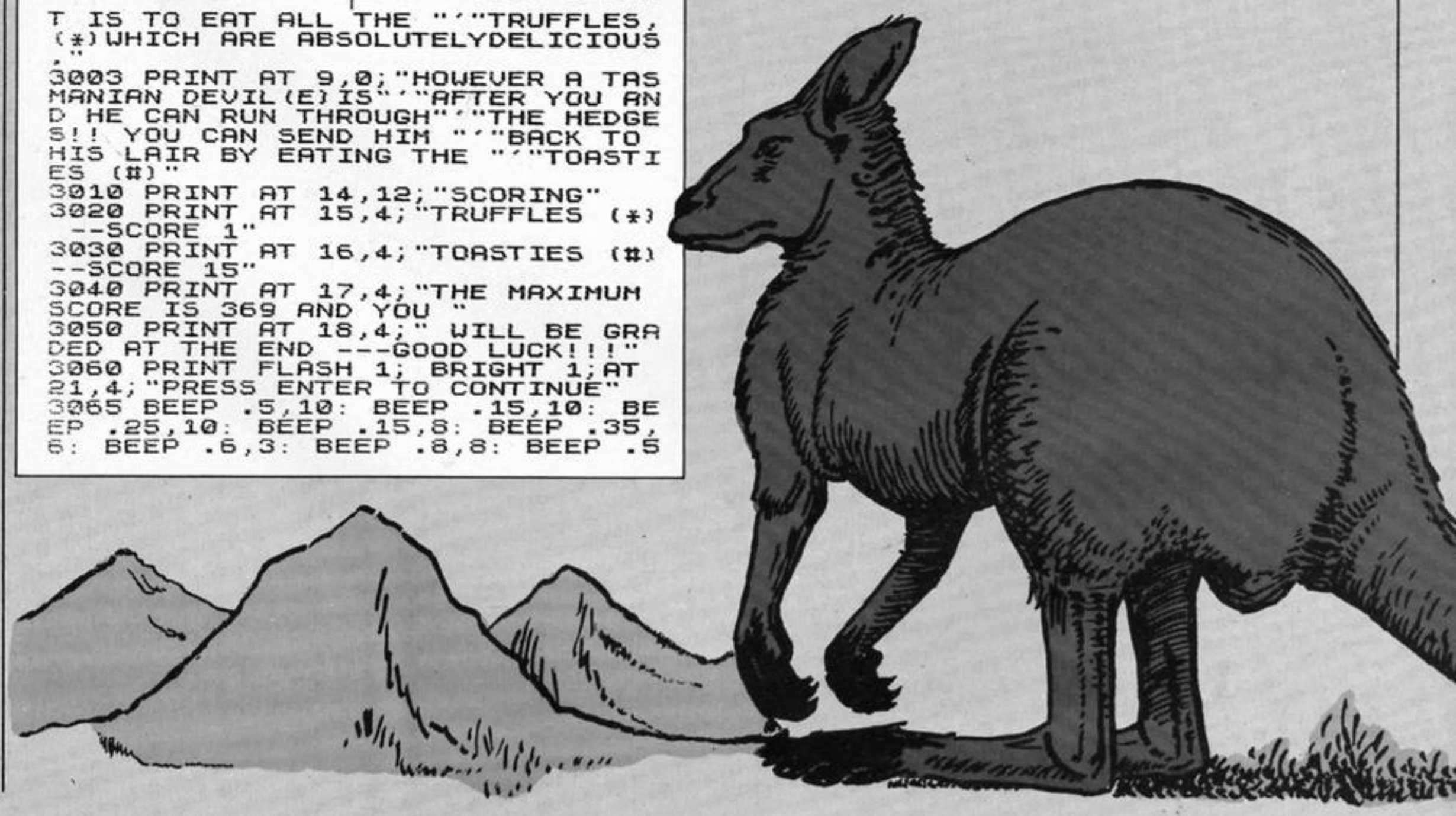
Listing 1 — Tasmanian Devil

```
    1 REM "DEVIL" by DAVID ARTS
    2 BORDER 5: PAPER 6: GO SUB 7
200
    3 LET hs=0
    4 PAUSE 75: PRINT AT 10,2;"Do
 you want instructions? y/n"
    6 IF INKEY$="y" THEN GO TO 30
00
    7 IF INKEY$="n" THEN CLS : GO
 TO 13
    8 IF INKEY$="" THEN GO TO 4
   13 CLS
   14 GO SUB 6000
   16 REM ******initialise******
   17 LET s=0: LET x=11: LET y=16
: LET t=2: LET u=2
   18 PRINT AT x,y;"B"
   19 PRINT OVER 1;AT t,u; INK 2;
"E"
   20 LET g=INT (RND*2)+1
   21 LET i=INT (RND*3)+1
   24 IF s=369 THEN GO TO 4000
   27 REM ******cursor detection*
*****
   28 IF INKEY$="5" THEN GO TO 10
00
   38 IF INKEY$="8" THEN GO TO 11
```

eeded for a roo and some

```
00
  46 IF INKEY$="6" THEN GO TO 12
00
  88 IF INKEY$="7" THEN GO TO 13
00
  93 IF INKEY$="" AND g=1 THEN G
O SUB 2000
  95 IF INKEY$="" AND g=2 THEN G
O SUB 2500
  99 GO TO 20
 999 REM ******movement left****
**
1000 IF m$(x,y-1)="*" THEN LET m
$(x,y-1)=" ": LET y=y-1: LET s=s
+1: PRINT AT 0,0;s: GO TO 1025
1002 IF m$(x,y-1)="#" THEN LET m
$(x,y-1)=" ": LET y=y-1: LET s=s
+15: PRINT AT 0,0;s: PRINT OVER
1;AT t,u;CHR$ 148: LET t=2: LET
u=2: PRINT OVER 1;AT t,u;CHR$ 14
8: GO TO 1025
1005 IF m$(x,y-1)="■" THEN GO TO
 1030
1010 IF m$(x,y-1)=" " THEN PRINT
 AT x,y;" ": LET y=y-1
1025 PRINT AT x,y+1;" "
1030 PRINT AT x,y;CHR$ 144
1040 GO SUB 2000
1050 GO TO 20
1099 REM ******movement right***
***
1100 IF m$(x,y+1)="*" THEN LET m
$(x,y+1)=" ": LET y=y+1: LET s=s
+1: PRINT AT 0,0;s: GO TO 1125
1102 IF m$(x,y+1)="#" THEN LET m
$(x,y+1)=" ": LET y=y+1: LET s=s
+15: PRINT AT 0,0;s: PRINT OVER
1;AT t,u;CHR$ 148: LET t=2: LET
u=2: PRINT OVER 1;AT t,u;CHR$ 14
8: GO TO 1125
1105 IF m$(x,y+1)="■" THEN GO TO
 1130
1110 IF m$(x,y+1)=" " THEN PRINT
 AT x,y;" ": LET y=y+1
1125 PRINT AT x,y-1;" "
1130 PRINT AT x,y;CHR$ 146
1140 GO SUB 2000
1150 GO TO 20
1199 REM ******movement down****
**
1200 IF m$(x+1,y)="*" THEN LET m
$(x+1,y)=" ": LET x=x+1: LET s=s
+1: PRINT AT 0,0;s: GO TO 1225
1202 IF m$(x+1,y)="#" THEN LET m
$(x+1,y)=" ": LET x=x+1: LET s=s
+15: PRINT AT 0,0;s: PRINT OVER
1;AT t,u;CHR$ 148: LET t=2: LET
u=2: PRINT OVER 1;AT t,u;CHR$ 14
8: GO TO 1225
1205 IF m$(x+1,y)="■" THEN GO TO
 1230
1210 IF m$(x+1,y)=" " THEN PRINT
 AT x,y;" ": LET x=x+1
1225 PRINT AT x-1,y;" "
1230 PRINT AT x,y;CHR$ 145
1240 GO SUB 2500
1250 GO TO 20
1299 REM ******movement up******
1300 IF m$(x-1,y)="*" THEN LET m
$(x-1,y)=" ": LET x=x-1: LET s=s
+1: PRINT AT 0,0;s: GO TO 1325
1302 IF m$(x-1,y)="#" THEN LET m
$(x-1,y)=" ": LET x=x-1: LET s=s
+15: PRINT AT 0,0;s: PRINT OVER
1;AT t,u;CHR$ 148: LET t=2: LET
u=2: PRINT OVER 1;AT t,u;CHR$ 14
8: GO TO 1325
```

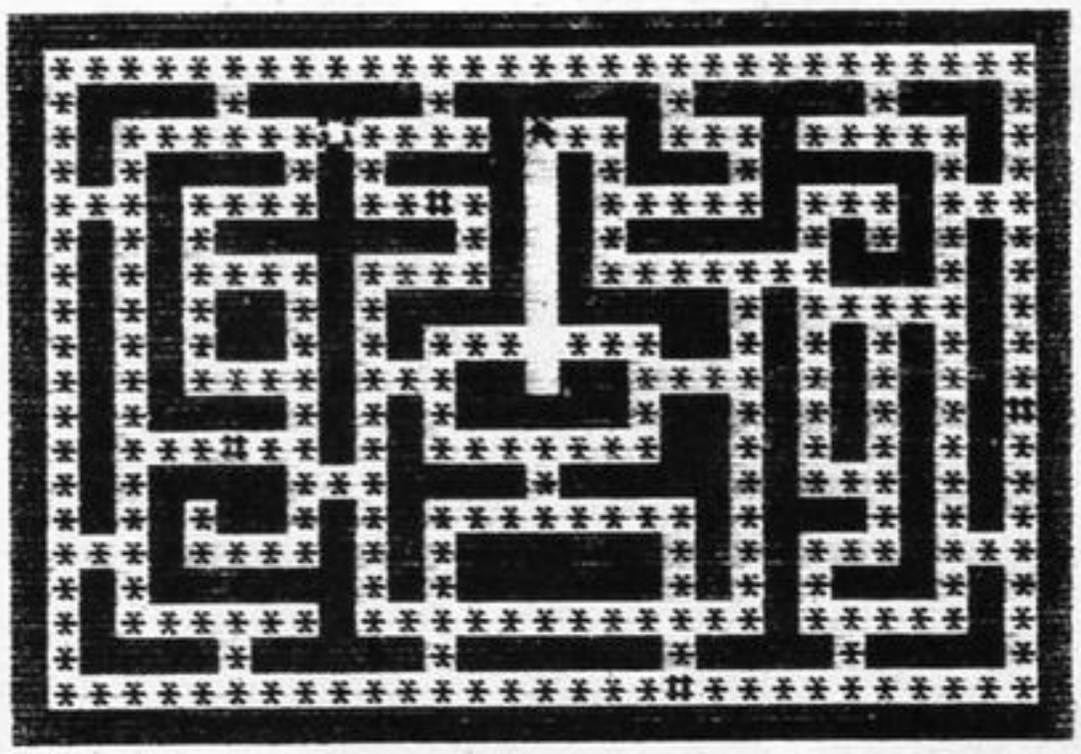
```
1305 IF m$(x-1,y)="■" THEN GO TO
 1330
1310 IF m$(x-1,y)=" " THEN PRINT
 AT x,y;" ": LET x=x-1
1325 PRINT AT x+1,y;" "
1330 PRINT AT x,y;CHR$ 145
1340 GO SUB 2500
1350 GO TO 20
1999 REM ******devil movement***
***
2000 IF u<y AND i=1 OR u<y AND i
=2 THEN LET u=u+1: PRINT OVER 1;
 BRIGHT 1; INK 2;AT t,u;CHR$ 146
: PRINT OVER 1;AT t,u-1;CHR$ 148
: GO TO 2040
2010 IF u>y AND i=1 OR u>y AND i
=2 THEN LET u=u-1: PRINT OVER 1;
 BRIGHT 1; INK 2;AT t,u;CHR$ 146
: PRINT OVER 1;AT t,u+1;CHR$ 146
: GO TO 2040
2040 IF t=x AND u=y THEN PRINT A
T t,u; INVERSE 1; FLASH 1;"#": B
EEP 1,0: PAUSE 2: BEEP 1,0: PAUS
E 2: BEEP .2,0: PAUSE 2: BEEP .8
,0: BEEP .5,3: BEEP .5,2: BEEP .
5,2: BEEP .5,0: BEEP .7,0: BEEP
.3,-1: BEEP 1,0: GO TO 4000
2100 RETURN
2500 IF t<x AND i=1 OR t<x AND i
=2 THEN LET t=t+1: PRINT OVER 1;
 BRIGHT 1; INK 2;AT t,u;CHR$ 148
: PRINT OVER 1;AT t-1,u;CHR$ 148
: GO TO 2540
2510 IF t>x AND i=1 OR t>x AND i
=2 THEN LET t=t-1: PRINT OVER 1;
 BRIGHT 1; INK 2;AT t,u;CHR$ 148
: PRINT OVER 1;AT t+1,u;CHR$ 148
: GO TO 2540
2540 IF t=x AND u=y THEN PRINT A
T t,u; INVERSE 1; FLASH 1;"#": B
EEP 1,0: PAUSE 2: BEEP 1,0: PAUS
E 2: BEEP .2,0: PAUSE 2: BEEP .8
,0: BEEP .5,3: BEEP .5,2: BEEP .
5,2: BEEP .5,0: BEEP .7,0: BEEP
.3,-1: BEEP 1,0: GO TO 4000
2600 RETURN
2999 REM ******instructions*****
*
3000 CLS
3001 PRINT AT 1,0;"  A MAZE WILL
 BE GENERATED AND"'"YOU (B)ARE P
LACED IN THE CENTRE."'"YOUR DIRE
CTION THROUGH THE MAZE"
3002 PRINT AT 4,0;"IS CONTROLLED
 BY THE CURSOR KEYS"'"YOUR OBJEC
T IS TO EAT ALL THE "'"TRUFFLES,
(*)WHICH ARE ABSOLUTELYDELICIOUS
."
3003 PRINT AT 9,0;"HOWEVER A TAS
MANIAN DEVIL(E)IS"'"AFTER YOU AN
D HE CAN RUN THROUGH"'"THE HEDGE
S!! YOU CAN SEND HIM "'"BACK TO
HIS LAIR BY EATING THE "'"TOASTI
ES (#)"
3010 PRINT AT 14,12;"SCORING"
3020 PRINT AT 15,4;"TRUFFLES (*)
 --SCORE 1"
3030 PRINT AT 16,4;"TOASTIES (#)
--SCORE 15"
3040 PRINT AT 17,4;"THE MAXIMUM
SCORE IS 369 AND YOU "
3050 PRINT AT 18,4;" WILL BE GRA
DED AT THE END ---GOOD LUCK!!!"
3060 PRINT FLASH 1; BRIGHT 1;AT
21,4;"PRESS ENTER TO CONTINUE"
3065 BEEP .5,10: BEEP .15,10: BE
EP .25,10: BEEP .15,8: BEEP .35,
6: BEEP .6,3: BEEP .8,8: BEEP .5
,1: BEEP .15,5: BEEP .25,8: BEEP
 .15,11: BEEP .35,15: BEEP .8,13
3070 BEEP .5,10: BEEP .15,10: BE
EP .25,10: BEEP .15,8: BEEP .35,
6: BEEP .6,3: BEEP .8,8: BEEP .5
,1: BEEP .15,5: BEEP .25,8: BEEP
 .15,6: BEEP .35,5: BEEP .8,6
3075 INPUT y$
3080 IF y$="" THEN CLS : GO TO 1
3
3090 IF y$<>"" THEN GO TO 3070
3999 REM ******evaluation******
4000 PRINT AT 0,0;s: PAUSE 100
4001 PRINT AT 0,28;hs
4002 IF hs<s THEN LET hs=s
4003 PRINT AT 0,28;hs
4004 IF s<100 THEN PRINT AT 0,16
;"POOR"
4005 IF s>99 AND s<200 THEN PRIN
T AT 0,16;"FAIR"
4006 IF s>199 AND s<300 THEN PRI
NT AT 0,16;"GOOD"
4007 IF s>299 AND s<330 THEN PRI
NT AT 0,16;"VERY GOOD"
4008 IF s>329 AND s<369 THEN PRI
NT AT 0,16;"SUPERB"
4009 IF S=369 THEN PRINT AT 0,16
;"CHAMPION": BEEP .5,8: BEEP .25
,8: BEEP .15,8: BEEP .5,8: BEEP
.5,5: BEEP .5,13: BEEP .25,13: B
EEP .15,13: BEEP .5,12: BEEP .5,
10: BEEP .5,8: BEEP .25,8: BEEP
.15,8: BEEP .5,10: BEEP .25,8: B
EEP .15,8: BEEP .5,8: BEEP .25,6
: BEEP .15,5: BEEP 2,3
4012 PRINT AT 0,4;"AGAIN? y/n"
4015 IF INKEY$="n" THEN GO TO 40
40
4020 IF INKEY$="y" THEN CLS : GO
 TO 4
4035 IF INKEY$<>"y" AND INKEY$<>
"n" THEN GO TO 4012
4040 STOP
5999 REM ******generate maze****
**
6000 PAUSE 30: PRINT AT 10,5;"PL
EASE WAIT A MOMENT!": PAUSE 50
6010 DIM m$(21,31)
6018 LET m$(1)="■■■■■■■■■■■■■■■■
■■■■■■■■■■■■■■■"
6019 LET m$(2)="■**************
**************■"
6020 LET m$(3)="■*■■■■■*■■■■■*■■■
```



```
6030 LET m$(4)="
6040 LET m$(5)="
6050 LET m$(6)="
6060 LET m$(7)="
6070 LET m$(8)="
6080 LET m$(9)="
6090 LET m$(10)="
6110 LET m$(11)="
6120 LET m$(12)="
6130 LET m$(13)="
6140 LET m$(14)="
6150 LET m$(15)="
6160 LET m$(16)="
6170 LET m$(17)="
6180 LET m$(18)="
6190 LET m$(19)="
6200 LET m$(20)="
6201 LET m$(21)="
6220 FOR x=1 TO 21: PRINT AT x,1
;m$(x)

6225 NEXT x
6230 RETURN
6999 REM ******graphics******
7000 FOR b=1 TO 4: READ d$
7010 FOR n=0 TO 7: READ a: POKE
USR d$+n,a
7020 NEXT n: NEXT b
7050 DATA "A",8,24,9,122,26,14,4
8,0
7060 DATA "B",36,24,60,126,60,36
,66,0
7070 DATA "C",16,24,144,94,88,11
2,12,0
7090 DATA "E",36,60,255,189,189,
60,66,195
7095 RESTORE 7000
7100 RETURN
```

How the screen looks in Tasmanian Devil



Froggs
by R. Howie

You'll score 1,000 points for every frog you guide to safety.

When first RUN there is a short delay and then the name of the program will be displayed in large letters with a rolling effect.

How it works

4-17 initialise
18-40 main game routine
1000-1010 game end
2000-2010 frog saved
3000-3010 high score routine
7000-7090 rolling titles
7100-7200 instructions
8000-8100 sub-routine for initialisation
9000-9015 SAVE
9100-9210 user-defined graphics

When you press a key the screen will clear and the instructions will be scrolled across the screen.

The frog starts at the bottom and the cursor keys are used to guide him to a randomly positioned hole at the top.

Considering all the objects that are moving at any one time, the program is relatively fast.

There has to be at least three spaces between each vehicle in the strings to make the game possible to play.

The longer the strings a$, b$ and c$ the more smoothly the game will run. But remember that the string a$ must be longer than the other two.

Note: to type in lines 7080 to 7085 just type 7080 and EDIT it, changing the line number by one each time.

Variables

f$ number of goes left
N$ high score name
a$ lorries
b$ cars
c$ "thing" between hedges
w$ instructions
(x,y) co-ordinates of frogs
FS frogs saved
M FOR...NEXT loops in BEEPs
S score
HS high score
array X$ program title

Listing 2 — Froges

```
   4 GO SUB 9200
   5 CLS
   6 LET HS=4500: LET N$="R.HOWI
E."
   7 GO TO 8000
   8 BORDER 0: PAPER 0: CLS
  10 LET a$="
  11 LET b$="
  12 LET C$="
  15 LET a$=a$+"*": LET b$=b$+"*
"
  16 LET y=19: LET x=15
  17 LET a=1: LET b=LEN b$-32
  18 LET a=a+1.5: LET b=b-1
  19 PRINT AT y,x; BRIGHT 1; INK
 4;"*";AT Y,X: IF SCREEN$ (Y-1,X
)=" " AND Y=2 THEN GO TO 2000
  20 PRINT AT 6,0; INK 7;A$(A TO
 A+31): IF INKEY$="" THEN BEEP .
01,30: BEEP .01,20
  21 PRINT AT 10,0; INK 5;B$(b T
O b+31): PRINT AT 16,0; BRIGHT 1
; INK 6;B$(B-5 TO (B-5)+31)
  22 PRINT AT 12,0; INK 4; BRIGH
T 1;"
": PRINT AT 12,0; OVER 1; I
NK 4;C$(A TO A+31)
  23 IF SCREEN$ (y,x+1)<>" " THE
N FOR a=1 TO 7: PRINT AT y,x; IN
K a;"*": PAUSE 5: NEXT a: GO TO
1000
  24 PRINT AT 14,0; INK 2; BRIGH
T 1;A$(a TO a+31)
  25 PRINT AT y,x;" "
  26 IF SCREEN$ (y,x-1)<>" " THE
N FOR a=1 TO 7: PRINT AT y,x; IN
K a;"*": PAUSE 5: NEXT a: GO TO
1000
  27 LET x=x+(INKEY$="8" AND X<3
1)-(INKEY$="5" AND X>0)
  29 LET y=y+(INKEY$="6" AND Y<2
```

```
0)-(INKEY$="7" AND Y>0)
  35 IF a$(a+32)="*" THEN GO TO
17
  40 GO TO 16
1000 IF S>HS THEN GO SUB 3000
1001 IF f=5 THEN PRINT FLASH 1;
INK 5;"UNLUCKY YOU LOST ALL YOUR
 GOES  PRESS ANY KEY TO PLAY AGA
IN      ": PAUSE 0: PAUSE 0: RUN
1010 FOR M=10 TO 0 STEP -1: BEEP
 .1,M: NEXT M: LET f=f+1: PRINT
AT 21,4-f;" ": GO TO 16
2000 FOR M=20 TO 30: BEEP .1,M:
NEXT M: FOR m=1 TO 10: BEEP .1,(
RND*30): NEXT m: LET S=S+1000: L
ET FS=FS+1: PRINT AT 0,0; BRIGHT
 1; INK 3;"SCORE : ";S;AT 1,X; I
NK 5;"*";AT Y,X;" ";AT 21,10;"FR
OGS SAVED : ";FS: PRINT AT 1,X;"
"
2010 PRINT AT 1,0; INK 4; BRIGHT
 1;"■■■■■■■■■■■■■■■■■■■■■■■■■■■■
■■■
```

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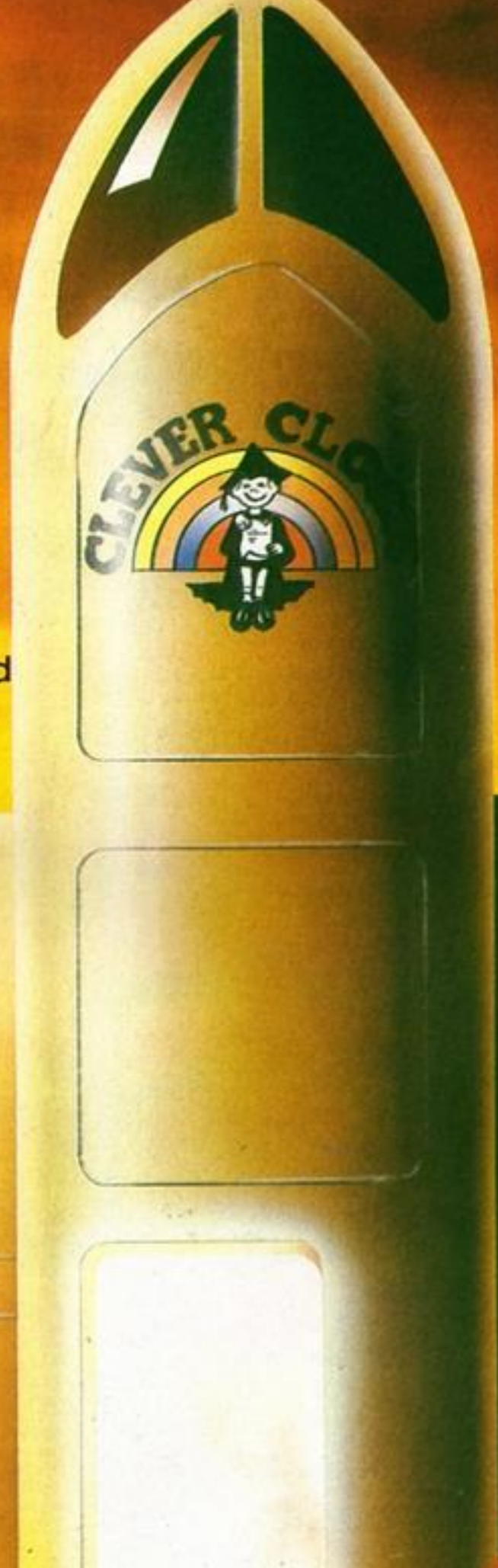

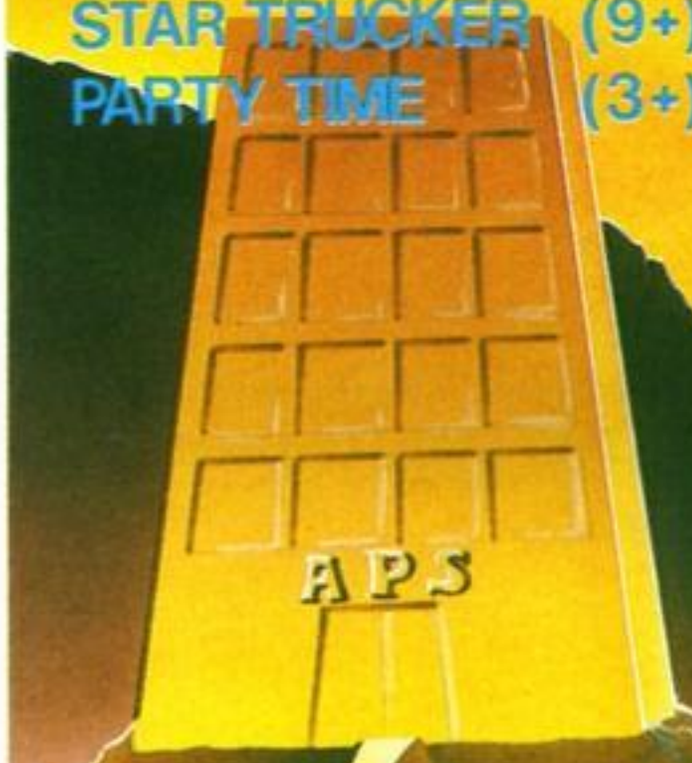

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Use your mind and fingers

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Brag
48K Spectrum
£4.95

T. Lebon, Little Brays, Brays La, Rochford, Essex SS4 3RP

Brag is essentially a game of bluff, or as the author of the program puts it, "the ability to outpsyche your opponents". Your opponents here are a bunch of characters called Wild Bill, The Kid and Puggy. If you want to be pedantic I suppose you could say you are really playing a computer, but believe me, after a few games you really do seem to be playing them.

You can control the type of game each will play, from sheer bluff to mathematically precise. Or, a far better option, you can let the computer decide who plays what type of hand, making for a far more natural type of game.

You do have a disadvantage: your winnings are limited to £1,000 whereas the rest have no limit. Shuffling takes about 15 seconds, and I played one game of 44 hands in one hour. If you like Brag, this will give you as good a game as most humans. It is possible to beat the computer, but not as consistently as you would like. **B.B.**

instructions	85%
playability	100%
graphics	75%
value for money	80%

★ ★ ★ ★

Hell Driver
32K BBC £7.95

Program Power, 9a Regent St, Chapel Allerton, Leeds

There has been a dearth of good driving games for the BBC for a long time, so it was with some interest that I started to play this. It's a copy of the arcade game where you drive through a maze of narrow streets to collect flags (or pass checkpoints). It's made more difficult by fire engines and ambulances which speed about and easier by the radar screen which gives you the location of the flags on a streetless plan. This means that you can only get to the approximate location from the radar before going to the main screen and darting about.

The game lacks that extra feature to make it addictive. The graphics are basic and in very few colours — the streets contain no houses and roads are simply blue bands. The control keys are not easy either. You are given the option of changing these but the routine to do so doesn't work properly!

I am disappointed with this game and will stick to Superior's Road Runner when I itch for an hour in the driving seat. **D.C.**

instructions	70%
playability	60%
graphics	40%
value for money	40%

★ ★

Mazecube
48K Spectrum
£4.99

PAL, Freepost, London SE12

Mazecube will intrigue you for a very long time! Contained in this program, which occupies both sides, are 24 3D cubes. On the six faces of each is a maze, varying in complexity. The choice is yours.

Your task is to negotiate your little man around the maze collecting money; £48 is spread about for the taking. As you take the cash, however, a gate appears behind you, preventing you using the same path again. Bank all £48 and you join the list of champions. And to bank the lot, you have to rotate the cube to walk over the other faces! Some very careful thinking is required.

This sounds quite easy, and it is, until you see all of the mazes! Some are fiendishly cunning, with money which must be collected, but no obvious path. The answer is to walk onto the neighbouring face, then walk back along a different path. There are even tunnels through the cube leading to the opposite face.

The program is certainly fast enough, and the graphics presentation very clever. Addictive and unusual, Mazecube is excellent value for money. **D.M.**

instructions	90%
playability	95%
graphics	80%
value for money	100%

★ ★ ★ ★ ★

Chess — The Turk
48K Spectrum
£8.95

OCP, PO Box 99, Oxford

An impressively packaged, all-singing, all-dancing chess program featuring a menu of 14 different options including saving/loading separate moves and boards, listing moves to printer, replaying moves, Blitz-chess, and even a demo mode. Add to this castling, "en passant" and promotion, together with interesting options of being able to go back as many moves as you wish, to rectify mistakes, or even remove your opponent's Queen, and you can see how comprehensive this program is.

It offers six levels of play. While the response time on level one is a few seconds, level four upwards takes between 10 minutes and six hours. Don't be too alarmed by this. The Spectrum, in common with most home computers, can't compete with a mainframe on speed, and you'll have to be very good to cope with level six.

Why "The Turk?" This was a chess-playing automaton of the 18th century, but I'm sure it didn't do all this. What more could you want? It's fair to point out however, that Mikrogen's Master Chess offers similar facilities for £2 less, and screen displays and built in clock are very similar too. **D.M.**

instructions	100%
playability	100%
graphics	95%
value for money	65%

★ ★ ★ ★

Delivery
32K BBC £7.50

Quebec Marketing, Little Bealings, Woodbridge, Suffolk IP13 6LT

Most cassette covers give a false impression of the game. Delivery is one of these. A nice picture of a delivery van speeding round a corner. Nothing like the game. However, there are plenty of instructions.

The game is in BASIC and takes a while to load. Once loaded the user is held waiting for another two minutes while a road system is devised.

On the screen there is a map showing positions of different shops, a compass, a small diagram of each junction you reach and a space for your co-driver's comments. And they aren't very nice either.

The map consists of randomly-placed letters. Each represents a shop. You are given a list of what you have to deliver and where to. Information on the roads etc. is given at the bottom. When a hazard occurs you can avoid danger if you hit M. Police chase you if you break the speed limit.

The great disadvantage is lack of graphics. Your co-driver's comments add a little more interest, but they become repetitive. At £7.50 I can't see the game competing with the rest of the market. **D.B.**

instructions	85%
playability	60%
graphics	15%
value for money	30%

★ ★

U.S. SCENE

Play Dallas on your 64

Although I don't often review games here, occasionally there's one that catches my eye.

Now I'm not personally interested in Dallas — the TV series, not the city — but, knowing the mania for the programme, I thought you might be.

From Datasoft comes an offering called Dallas Quest, which uses characters from the show itself. Using text, high resolution graphics, strategy and luck, it begins with the player inside the Texas mansion, Southfork.

Soon the game leads you to the South American jungle in your hope to get close to and out-think J.R. Ewing. You take the role of a detective whose job it is to find a missing map giving the location of a rich oil field. Each successful challenge in the many scenes leads you one step closer to finding the map.

Perhaps a bit cornball in the plot department, but what can you expect? Look at the show on which the game is modelled.

Anyway, I don't want to project too many of my personal feelings. The game costs $34.95 and is available from Datasoft Inc, 9421 Winnetka Avenue, Chatsworth, California 91311. (213) 701-5161.

Some interesting new software packages for the Commodore 64 have just been announced. Human Engineered Software (HES) has reached a marketing agreement with Microsoft and will be marketing Multiplan, which is the excellent second-generation financial spreadsheet program originally developed for the IBM PC. The package is planned to be sold for under $100, several times less than what the IBM version sells for, yet will retain most of the same capabilities. This program alone would justify the purchase of a 64. It should be available to you through any HES dealer, or by contacting them directly at Human Engineered Software, 150 North Hill Drive, Brisbane, California 94005. (415) 468-4111.

A company called Inkwell Systems has introduced a graphics package that is coupled with a light pen for the 64. Called Flexdraw, it allows its users to do pencil-on-paper types of operations using the full speed and high resolution graphics capabilities of the machine. All generated graphics can be stored on disc and edited or recalled when convenient. They can also be screen- or file-dumped out to a compatible printer. The resolution of the package is excellent and reasonably priced. You can contact Inkwell Systems at 7760 Vickers Street, San Diego, California 92138, (619) 268-8792.

Oscar is an optical bar-code reader for the 64 which carries a list price of $79.95. The device is made by Databar Corporation, which intends to market bar-code software and also plans to publish a magazine, called Databar, expected to include bar-code programs. You can contact Databar Corp. at 10202 Crosstown Circle, Eden Prairie MN 55344. (612) 944-5700.

Commodore has initiated donations, grants and an information programme all targeted for schools and various state departments of education. One of its programmes, called Commodore Resources in Education With States (CREWS), is designed to assist schools with training, selecting software, and developing the use of computers in education. The firm has also developed Education Resource Centres in schools using Commodore computers. Each centre shares curriculum, software, and training with the communities their school serves as well as being linked with other such centres via modem.

That's it for this week. See you here again in seven days.

Bud Izen
Fairfield, California.

ONE MAN'S VIEW

Software: tell us more

In contrast with the superb illustrations on the front of software cassettes the instructions lurking beneath their glossy veneer are usually very disappointing.

The obvious limitation for software producers is space. The small amount of literary material that can be crammed into the casing means that for complicated programs which need more than the legend "Switch On and Load" we have to contend with microscopic writing printed on half-a-dozen sheets which unfold like a street map of London.

This does not inspire anyone to actually sit down and read the instructions before commencing to blast aliens out of their electronic nightmares. At the best of times it is difficult to take more than a passing glance at the instructions, particularly when you obtain a brand new cassette. But when they look unattractive and are written in such a terse manner, then it is difficult to take any interest in them at all!

Yet the instructions can be the source of a great deal of information that can either add to your enjoyment of a game or help you understand the intricacies of programs which have more serious applications.

As an alternative to the instructions we now get which look as if they have been delivered by pigeon post, wouldn't it be better for more cassettes to be issued with an instructional booklet? This could be in a magazine format, and could contian diagrams, photographs and other illustrative material which could illuminate the darker aspects of the program. This and additional material in the text, such as tips on how to obtain the best scores, or tackle certain situations, or a list of the record scores, etc., could easily liven up the purely practical objective of telling you how to load the tape and which keys to press.

In this way the instructions would actually encourage you to play the tape and learn to use it to its full advantage in a far better way than trial and error.

Surely it is within the capacity of software houses to produce and distribute this material which would greatly enhance both the presentation and utilisation of their products?

Another advantage of such instruction booklets would be to help potential buyers assess the virtues in detail before parting with cash. This would be advantageous to people who have to buy software from shops which have very limited facilities for demonstrations and, more than likely, swarms of people fighting for attention.

If companies are worried about the extra cost of such booklets then they could use the room available to advertise their other products — they would be certain that their message is being delivered to the right people.

An additional feature could be biographies and details of the program designer and/or details about how (s)he dreamed-up the ideas which are included in the program and information about the software house itself.

The question software companies ought to ask themselves is: "Are most computer users content with the enigmatic slips of paper that allege to be instructions which are supplied with cassettes now, or would they prefer detailed and entertaining instructional booklets?"

Glynn Watson
Althorpe, South Humberside

● This space is for you to sound off about the micro scene, to present bouquets, to hurl brickbats, or just to share your opinions or experiences. Contributions from individuals earn a fee. Send your views to Paul Liptrot, Editor, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB

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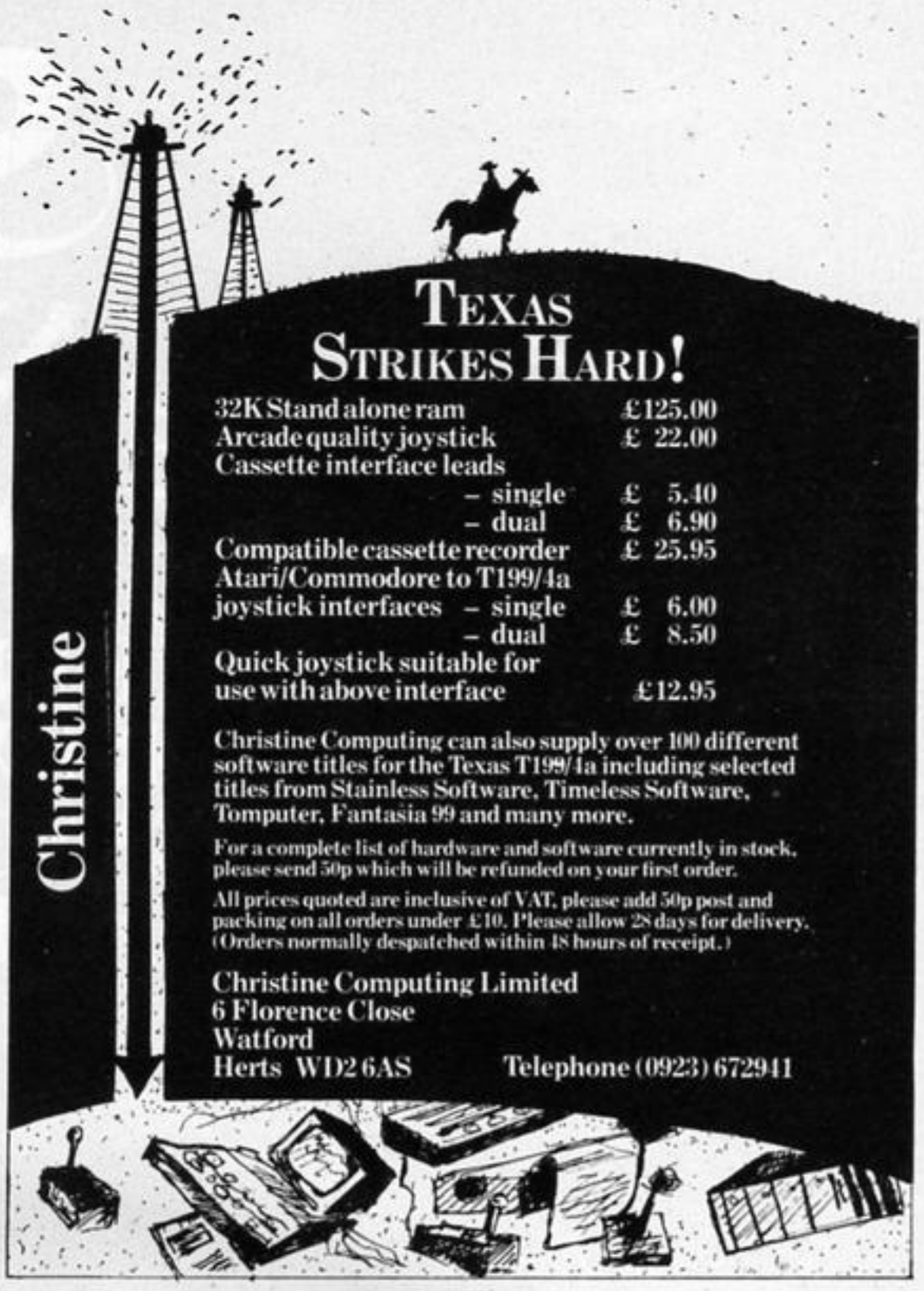

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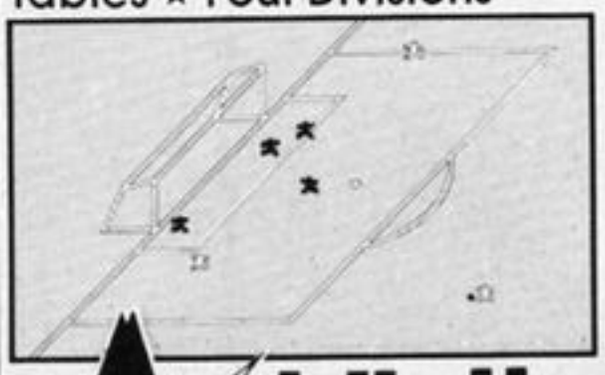

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* ZX81 Chart
Home Computing Weekly
1.8.83 and 1/11/83.

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Warwick, 40 Kingsway, Newby, Scarborough, Yorks

This otherwise good Frogger-type game is marred by the fact that the BREAK key has been disabled, so you have to make sure you write out the instructions (and watch out for fall-through due to some poor keyboard scans). To re-start you have to quit and reload. This can take quite a few minutes, so unless you know the way round the protection facility of Extended BASIC and can therefore re-instate BREAK you will have to put up with it.

A feature of the initialisation is that you can elect to choose your own keys. The display is quite good, although some characters look a little anorexic.

There are a number of hazards while conducting 10 frogs in turn across the road and river — for one the turtles and ducks can become bright red and treacherously frog-eating. A few extra items make this version different, but in the end it boils down to "who's got the highest score?" There are five levels, but the fastest is breakneck and I see no point in playing at such a speed. Needs Extended BASIC. Speech, joysticks optional. **P.B.**

instructions	80%
playability	80%
graphics	80%
value for money	50%

★ ★ ★

Radar Defence
£5

Pauline Programs, from Stainless, 10 Alstone Road, Stockport

Another in a long line of programs which urge you to defend yourself against marauding aliens. Given the deficiencies of TI BASIC, the graphics and keyboard scanning are above aveage, although the instructions are sparse but adequate.

There are three screens of aliens attacking you one at a time — this owes more to the slowness of TI BASIC than to any alien chivalry — and you control your defending base (one of three) throught the keyboard. There is a force field which can be used a maximum of three times to provide protection, and you can fire at and destroy the aliens, although some do fire back. There are additional hazards in the shape of invisible aliens, but it is fairly easy to find and destroy them, especially since some cannot resist firing and giving themselves away.

The "radar" is actually more of a gimmick than any real help, often pointing in the wrong direction. The aim is to score as many points as you can but, as usual, once you stop playing and switch off, you'll have to rely on a friend to vouch for your ability. **P.B.**

instructions	70%
playability	90%
graphics	75%
value for money	65%

★ ★ ★

Fun Pac 3
£6.95

Virgin, 61-63 Portobello Rd, London W11 3DD

A good value package comprising three arcade-type games. Golf, offering one to 18 holes, has all the ingredients, such as type of iron and hazards like trees, water and sand bunkers. You select iron, direction and strength and then drive by pressing the space bar.

Nuclear Disaster made me think of other similarly-named games, but I found it to be different. You see the plan of a building giving positions of a leaking reactor, decontamination chamber and a room containing door sealing blocks. Scattered about are scientists for you to rescue by pushing them, singly, into the decontamintion chamber. Then you have to seal the building with the blocks before earth is contaminated.

Sea Wolf puts you in command of a submarine. With 20 torpedoes you have to destroy the enemy ships. You are given the view through a periscope and a radar scanner — dive fast if you see the destroyer.

With full instructions on a leaflet and on screen, I found this collection entertain and good fun. **D.B.**

instructions	90%
playability	90%
graphics	90%
value for money	85%

★ ★ ★ ★

Floor Planner
£3.50

B. Jackson, 21 Roman Way, New Balderton, Newark, Notts NG24 3AU

This falls into a category which contains all those programs unlikely to have a general application and appeal. If you are into floor planning in a big way then obviously any program dealing with that subject will help. This one uses sprites to allow you to select either items from a built-in library — radiators, power points, windows, doors, beds double and single, tables, chairs and settees — or name, but not define the shape of, your own objects, and to loate them in a room.

Relative sizes are given in metric units — good to see someone is using the more sensible if unfamiliar system — and objects can be orientated to suit the room. The documentation is quite good, even listing the main routines and their function, a practice more software houses ought to adopt.

However, perhaps due to my own lack of aptitude, I found the program difficult to understand and operate, and although items were colour-coded, the block approach did not help me at all. Although the programmer has obviously put a lot of thought into this, his attentions might have been more fruitfully applied elsewhere. Needs Extended BASIC. **P.B.**

instructions	100%
ease of use	50%
display	70%
value for money	90%

★ ★ ★ ★

Bar Graph
£3.50

B. Jackson, 21 Roman Way, New Balderton, Newark, Notts NG24 3AU

Displaying data with histograms is usually easier when the bars are PRINTed on the screen. It can be quite a challenge to write a program to provide vertical bars with pixel precision. You need a range of 'caps' for the bars and calculations must be performed.

This produces main bodies for the bars, then goes over them again adding the caps, which can look a little disconcerting. You can create upto 10 different 12-element histograms, each named by a letter, and each allowing you to title X and Y axes. You can enter values 0.02 — 9999999 and it will automatically rescale, choosing the best range for presentation. A multiplication factor is displayed with each graph to indicate the relationship of the scale displayed to the actual axis. There are a number of options.

The calculations are done surprisingly quickly. It is possible to store your data on tape, and to retrieve it, creating a limited but powerful graphics presentation facility. If only the tape transfer rate was higher this would make a valuable graphics tool for conferences etc. Needs Extended BASIC. **P.B.**

instructions	65%
ease of use	90%
display	90%
value for money	80%

★ ★ ★ ★

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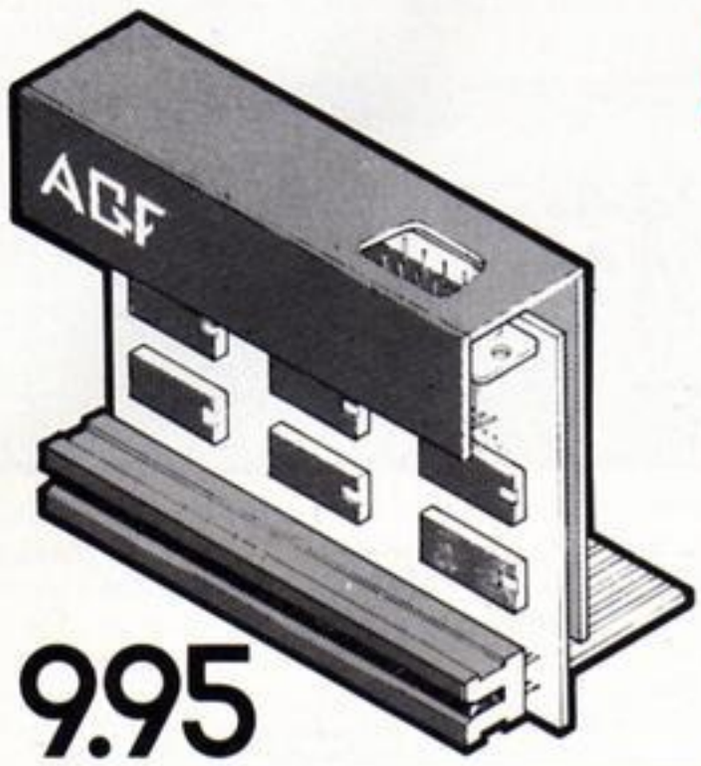

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Will you take up the challenge from The Zork?

If you fail to stop the wires touching you'll have to face The Zork — and he's really mean. Stephen Dell wrote this zany game for the Commodore 64

The Zork challenges you to do battle. Can you meet the challenge? Fire off 150 successful shots before you crash or two opposing wires touch, causing a reaction.

Move up and down and fire left and right. If two wires touch the circuit is complete and the Zork comes on to de-atomize you. You can never run out of fire power.

You may, if in serious danger of de-atomization, press the "chicken" key. This clears the entire screen of wires — but it can only be used three times.

Here's a few tips:

Shoot at the wires closest to you. Not only does this ensure that it doesn't touch the opposing wire, but shooting from a short range means you'll get in more shots.

If you see a shot has missed you needn't wait until it hits the wall before firing another — press any key while the laser is in the air and it will then cancel out. You cannot move while the laser is airborne.

Use the chicken key at the last moment, as soon as there is a gap of one wire between wires.

Don't wait too long between shots. It's only moderately difficult to defeat the Zork. However, if you find it too difficult decrease the number of shots needed to win, 150, in line 702. On the other hand, if you find it too easy increase that number.

How it works

10-76 set up graphics
80-120 move spaceship
130-180 set up chicken graphics
190-220 put chickens on screen
230-255 set up "Reactor" sprites
260-288 set up title screen
280-325 read keyboard
330-390 victory tune and message
400-490 chicken key pressed: clear wires
500-570 add extra bit of wire
600-620 move laser
700-770 successful shot at wire
800-870 Zork appears and kills you
900-925 Reactor theme music
930+ data for sprites, character, sound

Your controls:

A	up	**comma**	left
Z	down	**full stop**	right
left arrow			chicken key

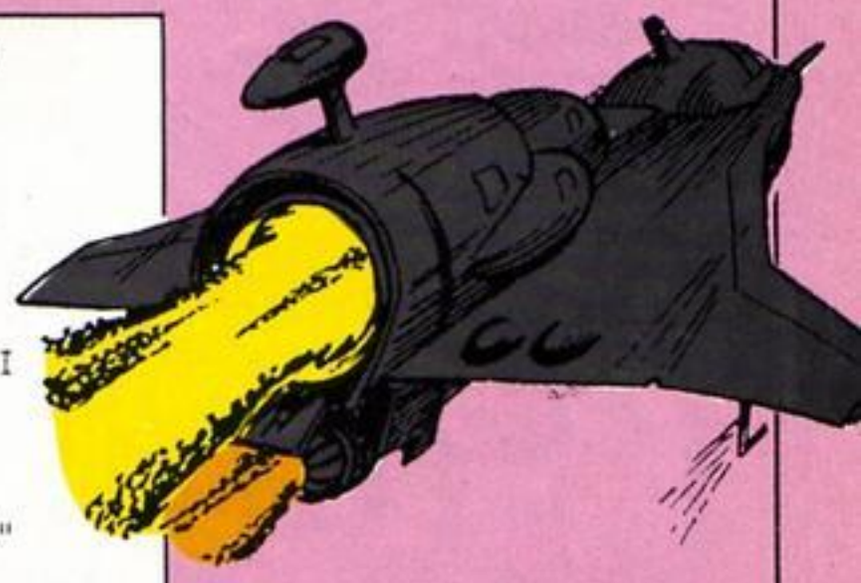
If you lose, your score and your percentage victory is displayed. Score is time survived times the number of successful shots.

• We have inserted REMs in lines above the control characters as a guide to typing in the program. These REMs should not be entered.

Variables

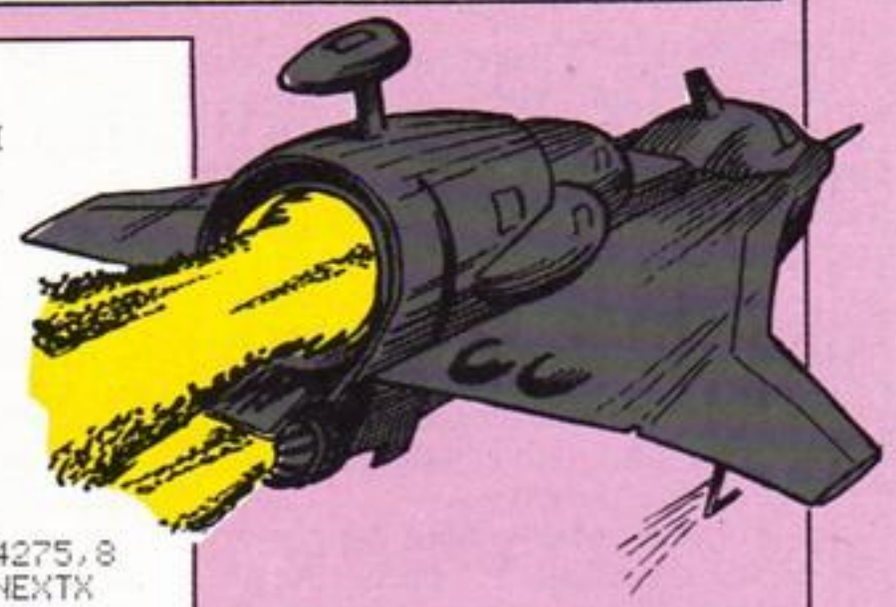
V spaceship
SZ chickens left
L1(X), L2(X)/Z1(X), Z2(X) start location of wires left, right/ position of wires left, right
A/D position/direction of spaceship
J/P position/direction of laser
O colour memory start
TI$ time survived (automatically increases)
Y is laser in air?
L random wire to lengthen
S number of successful shots
I,X,N temporary variables for loops

```
5 REM* REACTOR *
6 REM* BY STEPHEN DELL *
7 REM* MARCH 1984 *
8 REM [SHIFT L][SHIFT S]
10 POKE53280,0:POKE53281,0:PRINT"[CLR]"
11 PRINTCHR$(14);CHR$(8):GOSUB230
12 FORI=0TO62:READJ:POKE896+I,J:NEXT
13 GOSUB260:GOSUB130
15 FORI=12288TO12359:READJ:POKEI,J:NEXTI:FORI=12544TO12551:POKEI,0:NEXTI
16 POKE53272,28:V=3:SZ=3
18 DIML1(12),L2(12),T1(12),T2(12)
20 DIMZ1(12),Z2(12):Z1(1)=1064:Z1(2)=1144:Z1(3)=1224:Z1(4)=1304:Z1(5)=1384
30 Z1(6)=1464:Z1(7)=1544:Z1(8)=1624:Z1(9)=1704:Z1(10)=1784:Z1(11)=1864
40 Z1(12)=1944:Z2(1)=1094:Z2(2)=1174:Z2(3)=1254:Z2(4)=1334:Z2(5)=1414
50 Z2(6)=1494:Z2(7)=1574:Z2(8)=1654:Z2(9)=1734:Z2(10)=1814:Z2(11)=1894
60 Z2(12)=1974:A=1479:O=54272
61 FORI=1TO12:L1(I)=Z1(I)+1:NEXTI
62 FORI=1TO12:L2(I)=Z2(I)-1:NEXTI
66 FORI=1064TO1944STEP40:POKEI,0:POKEI+O,6:NEXT:FORI=1094TO1984STEP40
67 POKEI,0:POKEI+O,6:NEXT
75 GOSUB190:GOSUB900:TI$="000000"
76 GETJ$:IFJ$<>""THEN76
80 IFPEEK(A)=1THEN801
85 POKEA,V:POKEA+O,5
90 GETA$:IFA$<>""THEN290
100 J=0:IFA+D=1039ORA+D=1999THEND=0
110 Y=0:GOTO500
120 POKEA,32:A=A+D:GOTO80
130 POKE2041,14:POKE2042,14:POKE2043,14
150 POKE53288,5:POKE53289,8:POKE53290,7
155 POKE53287,7
160 FORI=1TO3:POKE53264,PEEK(53264)OR2↑I:NEXTI
165 POKE53250,35:POKE53251,50:POKE53252,35:POKE53253,100
170 POKE53254,35:POKE53255,150
180 RETURN
190 POKE54296,0:POKE54273,0:POKE54296,15:POKE54276,0:POKE54276,65:POKE54275,5
200 POKE54277,11:POKE54278,0
210 FORI=1TO3:POKE53269,PEEK(53269)OR(2↑I):POKE54273,5:FORX=1TO200:NEXTX
215 POKE54276,64:POKE54276,65:NEXTI
220 POKE54296,0:FORX=1TO500:NEXT:RETURN
230 FORI=0TO62:READJ:POKE12608+I,J:NEXTI
235 FORI=0TO62:READJ:POKE12672+I,J:NEXTI
240 FORI=0TO62:READJ:POKE12736+I,J:NEXTI
250 POKE2045,197:POKE2046,198:POKE2047,199
255 RETURN
260 POKE53292,7:POKE53293,7:POKE53294,7
262 FORI=3TO7:POKE53271,PEEK(53271)OR2↑I:POKE53277,PEEK(53277)OR2↑I:NEXTI
268 POKE53258,106:POKE53260,156:POKE53262,204
269 FORI=3TO7:POKE53269,PEEK(53269)OR2↑I:NEXTI
270 FORI=0TO100
271 POKE53259,I:POKE53261,I:POKE53263,I:NEXTI
272 PRINT"[CLR][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN]";TAB(12);"[SHIFT Y] [SHIFT T]EPHEN [SHIFT D]ELL[SHIFT N]":PRINTTAB(17);"[SHIFT @]1984"
273 POKE53248,0:POKE53249,48:POKE2040,14:POKE53287,10
274 POKE53271,PEEK(53271)OR210:POKE53277,PEEK(53277)OR210
275 POKE53276,PEEK(53276)AND255-(210)
```

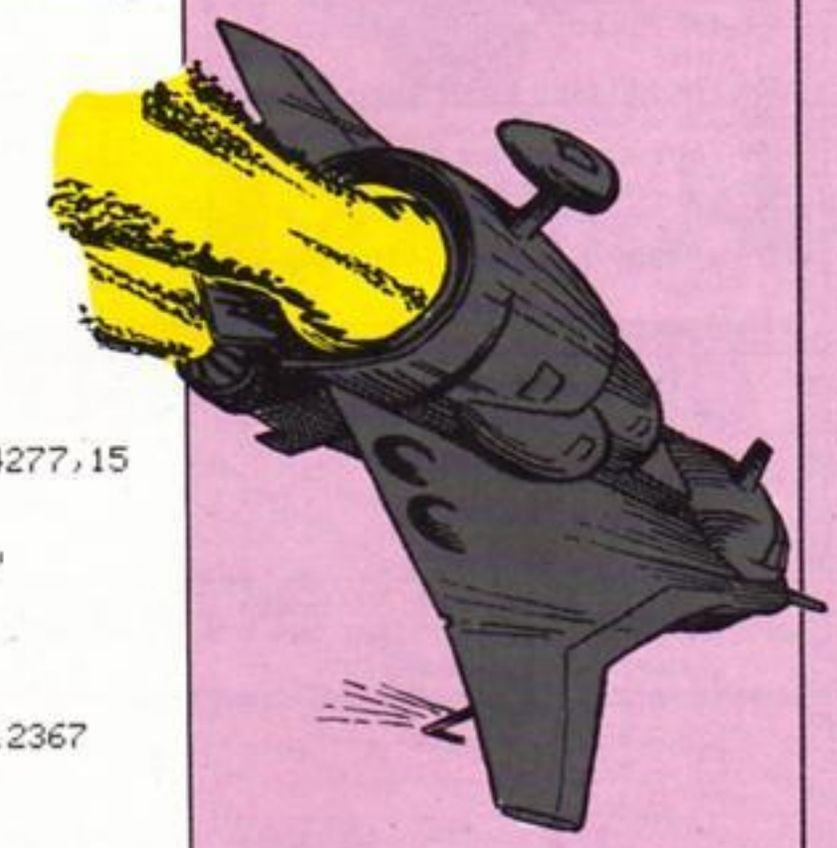


COMMODORE 64 PROGRAM

```
276 POKE53269,PEEK(53269)OR210:FORI=0TO155:POKE53248,I:NEXTI
284 FORX=1TO3500:NEXTX:FORI=5TO7:POKE53269,PEEK(53269)AND255-(2↑I):NEXTI
285 POKE53269,PEEK(53269)AND255-(210)
286 POKE53271,PEEK(53271)AND255-(210):POKE53277,PEEK(53277)AND255-(210)
287 FORI=53248TO53263:POKEI,0:NEXTI
288 PRINT"■";CHR$(142):RETURN
290 IFA$="A"THEND=-40:V=3
300 IFA$="Z"THEND=40:V=3
310 IFA$=","THEND=0:P=-1:V=4:GOTO600
320 IFA$="."THEND=0:P=1:V=5:GOTO600
322 IFA$="←"ANDSZ>0THEN400
325 GOTO100
330 FORI=0TO62:READJ:NEXTI
335 POKE54273,0:POKE54296,0:POKE54296,15:POKE54276,0:POKE54276,65:POKE54275,8
340 POKE54277,15:POKE54278,15:FORI=1TO32:READJ:POKE54273,J:FORX=1TO135:NEXTX
350 POKE54276,64:POKE54276,65:NEXTI:POKE54296,0
```



```
370 PRINT"■":POKE53272,21:FORI=1TO3:POKE53269,PEEK(53269)AND255-(2↑I):NEXTI
380 PRINT"■■■■■■■■";CHR$(14);TAB(11);"■■■CONGRATULATIONS!■■■"
390 PRINTTAB(9);"■■YOU SAVED THE EARTH!■" FORI=1TO3500:NEXTI:RUN
400 FORI=1TO12:T1(I)=Z1(I):NEXTI
410 FORI=1TO12:T2(I)=Z2(I):NEXTI
420 POKE54296,0:POKE54296,15:POKE54276,0:POKE54276,129:POKE54277,15
430 POKE54278,15:POKE54273,2
440 FORI=1TO12:FORX=T1(I)TOL1(I)STEP-1
445 IFPEEK(X)=1THENPOKEX,32
446 NEXTX:Z1(I)=L1(I)-1:NEXTI
450 FORI=1TO12:FORX=T2(I)TOL2(I)
455 IFPEEK(X)=1THENPOKEX,32
456 NEXTX:Z2(I)=L2(I)+1:NEXTI:V=3
457 POKEA,V:IFP=2THENE=0:RETURN
458 GETJ$:IFJ$<>""THEN458
460 POKE53269,PEEK(53269)AND(255-2↑SZ)
470 POKE54296,0:POKE54296,15:POKE54276,0:POKE54276,65:POKE54275,5:POKE54277,11
475 POKE54278,0:POKE54273,5
490 SZ=SZ-1:GOTO100
500 IFRND(1)<.5THEN550
510 L=INT(RND(1)*12)+1:IFZ1(L)+1=JTHENY=0:GOTO620
520 IFPEEK(Z1(L)+1)=32THENZ1(L)=Z1(L)+1:POKEZ1(L),1:POKEZ1(L)+0,10:K=2
522 IFPEEK(Z1(L)+1)=1THEN800
525 IFY=0ANDK=2THENK=0:GOTO120
526 K=0:IFY=2ANDPEEK(Z1(L)+1)<>1THEN620
530 POKEZ1(L)+1,1:POKEZ1(L)+0+1,10:FORX=1TO1000:NEXTX:GOTO801
550 L=INT(RND(1)*12)+1:IFZ2(L)-1=JTHENY=0:GOTO620
560 IFPEEK(Z2(L)-1)=32THENZ2(L)=Z2(L)-1:POKEZ2(L),1:POKEZ2(L)+0,10:K=2
562 IFPEEK(Z2(L)-1)=1THEN800
565 IFY=0ANDK=2THENK=0:GOTO120
566 K=0:IFY=2ANDPEEK(Z2(L)-1)<>1THEN620
570 POKEZ2(L)-1,1:POKEZ2(L)+0-1,10:FORX=1TO1000:NEXTX:GOTO801
600 POKE54296,0:POKE54296,15:POKE54276,0:POKE54276,129:POKE54277,11
601 POKE54278,0:POKE54273,11
605 POKEA,V:POKEA+0,5:J=A+P
610 GETA$:IFA$<>""THEN290
611 IFPEEK(J)=1THENPOKEJ,32:GOTO700
615 IFPEEK(J)=0THENV=3:POKEA,V:GOTO100
617 POKEJ,2:POKEJ+0,1:Y=2:GOTO500
```

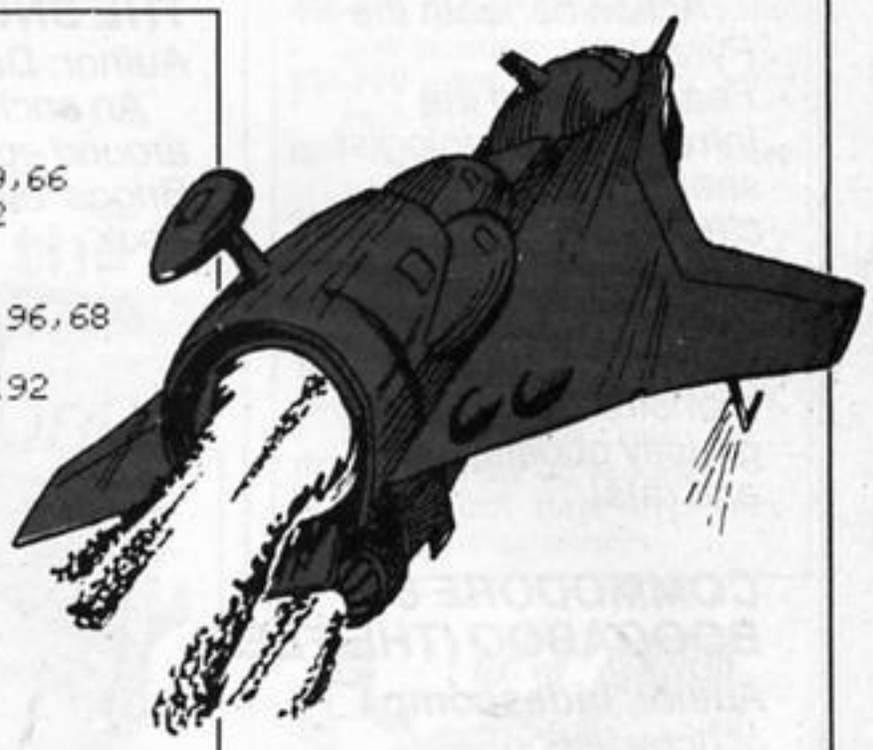


```
620 POKEJ,32:J=J+P:GOTO610
700 POKE54273,0:POKE54296,0:POKE54296,15:POKE54276,0:POKE54276,129
701 POKE54278,0:POKE54273,5
702 S=S+1:IFS=150THEN330
705 IFP=1THEN750
710 FORI=1TO12
720 IFZ1(I)=JTHENZ1(I)=Z1(I)-1:V=3:POKEA,V:GOTO100
730 NEXTI
750 FORI=1TO12
760 IFZ2(I)=JTHENZ2(I)=Z2(I)+1:V=3:POKEA,V:GOTO100
770 NEXTI
800 FORI=L1(L)TOL2(L):POKEI+0,7:NEXTI:IFY=2THENY=0:POKEJ,32
801 POKE54296,0:POKE54296,15:POKE54276,0:POKE54276,65:POKE54275,5:POKE54277,15
802 POKE54278,15:POKEA,V:POKEA+0,5:FORI=100TO0STEP-.4:POKE54273,I:NEXTI
803 E=2:GOSUB400:IFA=1959THENY=A:GOSUB850:GOTO807
804 FORY=ATO1919STEP40:POKEY,3:POKEY+0,5:FORX=1TO35:NEXTX:POKEY,32:NEXTY
805 POKEY,3:POKEY+0,5:GOSUB850
807 FORX=1119TO1919STEP40:POKEX,8:POKEX+0,7:NEXTX
809 POKE54296,0:POKE54296,15:POKE54276,0:POKE54276,17:POKE54277,15
810 POKE54278,15:FORI=80TO5STEP-.5:POKE54273,I:NEXTI:POKE54276,0
820 POKE54276,129:POKE54273,5:POKEY,9:POKEY+0,1:FORI=1TO35:FORT=12360TO12367
825 POKET,RND(1)*256:NEXTT:NEXTI:POKE54296,0:PRINT"■":POKE53272,21
826 FORI=0TO3:POKE53269,PEEK(53269)AND255-(2↑I):NEXTI
829 REM[5 CRSR DOWN][YEL]
830 PRINT"■■■■■■";CHR$(14);TAB(13);"■■SCORE";VAL(TI$)*S
834 REM[2 CRSR DOWN][GRN][CRSR RIGHT]
835 PRINTTAB(8);"■■■PERCENTAGE VICTORY";INT((S/150)*100);"■%"
840 FORI=1TO3500:NEXTI:POKE54296,0:RUN
```

COMMODORE 64 PROGRAM

```
850 FORN=0TO62:READZ:POKE832+N,Z:NEXTN:POKE2040,13:POKE53276,PEEK(53276)OR210
860 POKE53285,8:POKE53286,6:POKE53287,7:POKE53269,PEEK(53269)OR210
870 POKE53249,50:FORI=0TO136:POKE53248,I:NEXTI:RETURN
900 POKE54296,0:POKE54296,15:POKE54276,0:POKE54276,65:POKE54275,8:POKE54277,15
910 POKE54278,15:FORI=1TO45:READJ:POKE54273,J:FORX=1TO100:NEXTX:POKE54276,64
920 POKE54276,65:NEXTI
925 POKE54296,0:RETURN
```

```
930 DATA33,0,0,98,128,0,164,128,0,40,64,0,48,64,0,96,64,0,160,32,32
931 DATA48,32,80,40,192,136,37,1,8,34,1,16,33,129,224,32,65,0,32,33,0
932 DATA34,66,136,84,68,80,136,36,33,0,0,0,0,0,0,0,0,0,0,0,0
933 DATA0,0,0,0,0,0,0,0,1,0,0,1,0,0,1,0,0,1,24,145,129,37,10,65,66,4,39,66
934 DATA4,1,66,4,1,70,4,1,69,4,1,69,4,1,68,138,33,164,146,66,24,145,132
935 DATA0,0,0,0,0,0,0,0,0,0,0,0
936 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0 0,0,0,0,0,98,51,0,148,84,193
937 DATA8,152,1,8,16,1,8,16,1,8,16,1,8,16,1,8,16,129,8,16,66,144,42,36,96,68
938 DATA0,0,0,0,0,0,0,0,0,0,0,0
950 DATA12,3,3,30,1,134,51,0,204,97,128,120,196,192,48,96,96,96,48,63,192
960 DATA48,31,192,48,0,96,48,0,48,24,28,24,12,62,48,7,227,96,3,193,192
970 DATA6,0,192,12,0,99,24,0,54,176,0,28,224,0,12,192,0,24,96,0,48
1000 DATA195,219,219,126,126,219,219
1010 DATA195,129,193,99,34,54,20,28,8
1020 DATA0,0,0,255,255,0,0,0,24
1030 DATA24,60,231,231,60,24,24,3,51,63
1040 DATA255,255,63,51,3,192,204,253
1050 DATA255,255,253,204,192
1055 DATA0,195,231,126,60,126,231,195
1056 DATA126,255,219,219,255,102,102
1057 DATA231,3,6,24,112,192,112,24,7
1060 DATA36,38,43,48,54,57,54,54,38,38,54,54,32,36,38,43,48,54,48,48,36,36
1070 DATA48,48,28,32,36,38,43,48,43,43,48,48,43,43,27,28,32,27,28,32,28,28,28
1090 DATA0,0,0,96,0,6,255,0,255,99,129,196,1,195,128,0,231,0,0,126,0,31,255
1100 DATA248,2,0,64,6,0,96,7,239,224,6,68,96,6,68,96,6,68,96,127,255,254,255
1110 DATA255,255,24,0,24,24,0,24,56,0,28,248,0,31,248,0,31
1120 DATA36,36,36,38,43,43,48,48,32,32,32,36,38,38,43,43,28,28,57,57,43,43
1130 DATA36,36,38,32,43,27,28,28,28,28
```



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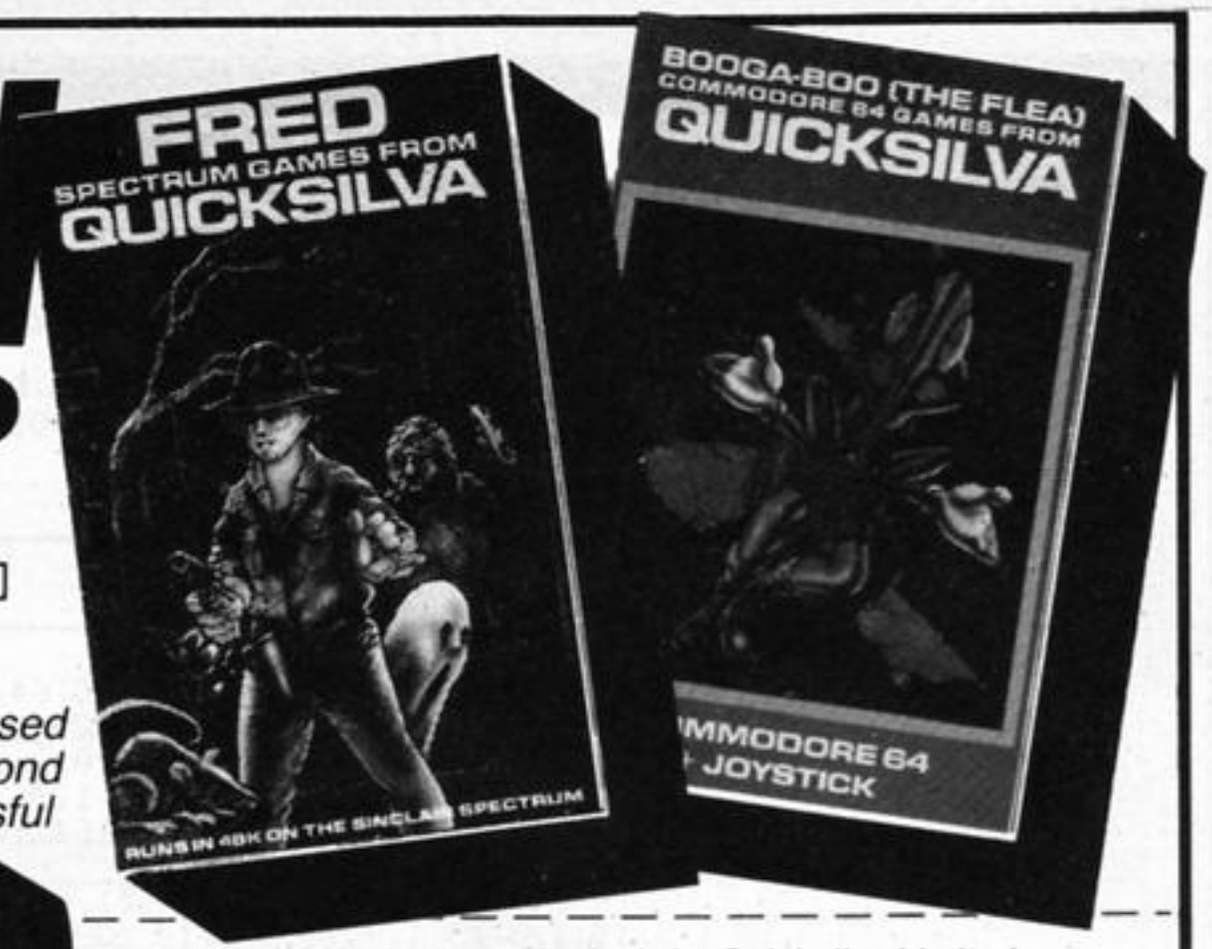

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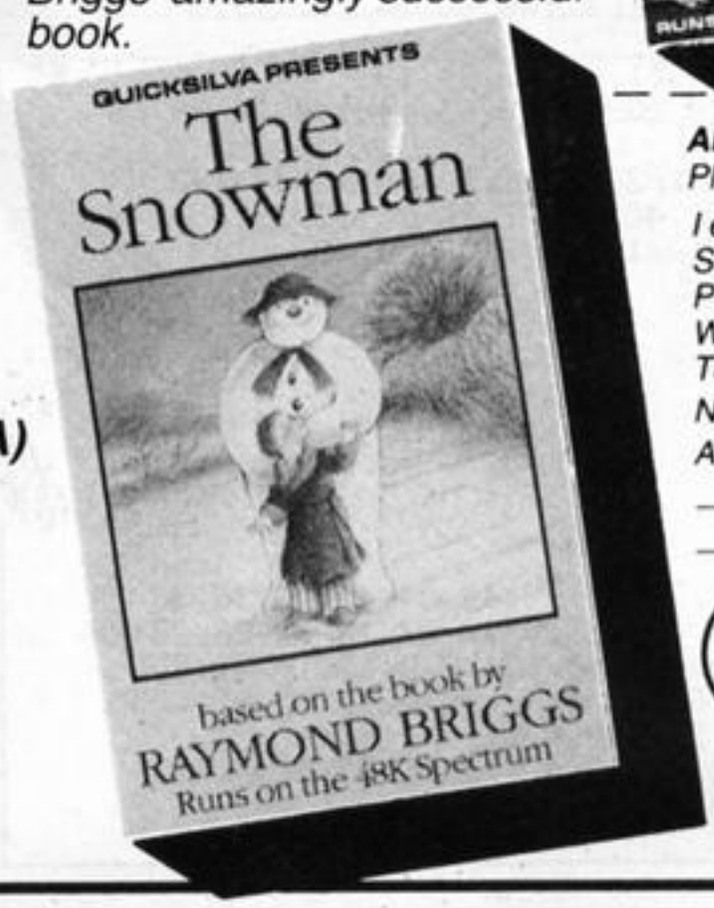

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Weedkiller

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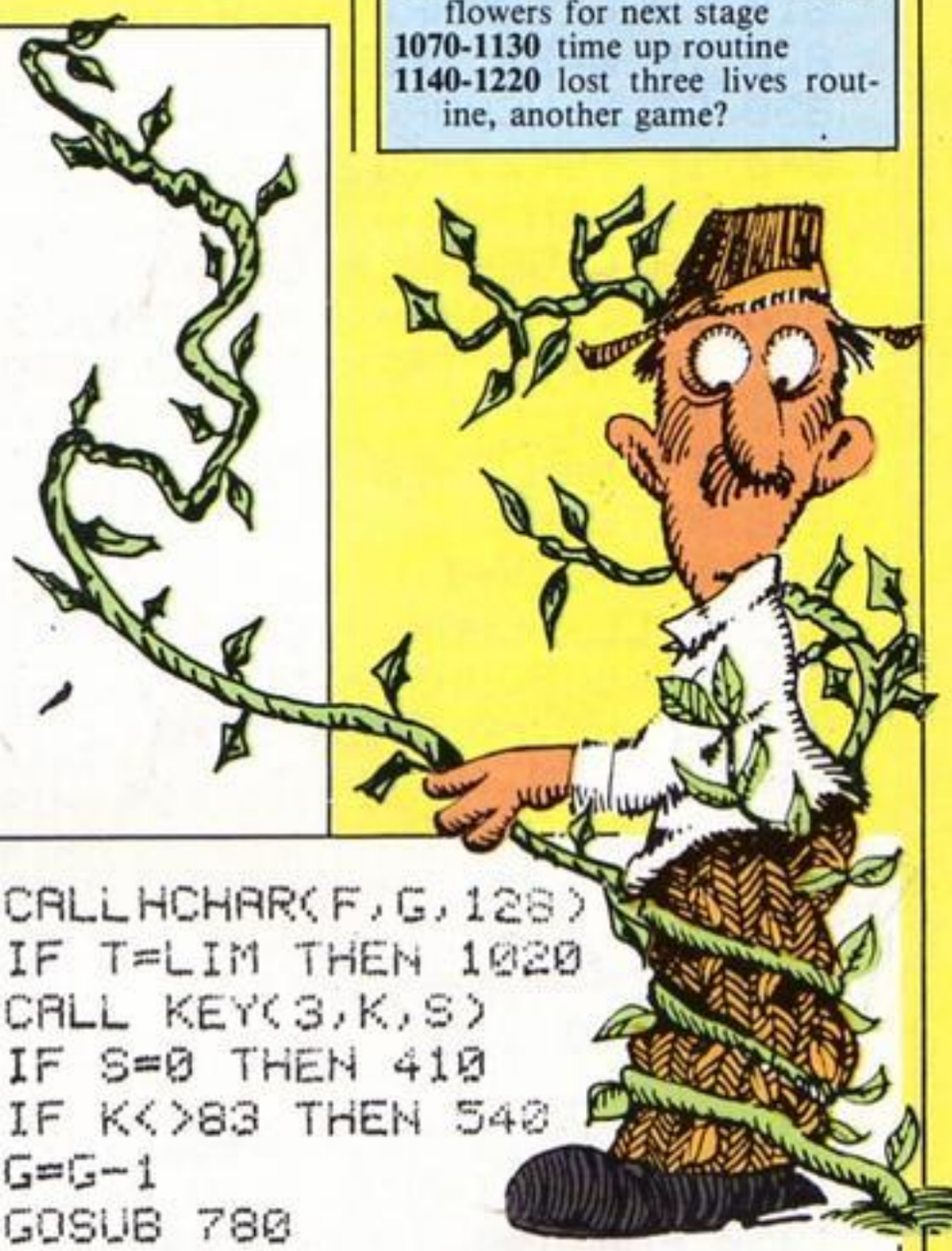
With every move another flower appears and you'll have to be careful that they do not block your path before you run out of time, set at the beginning of the game.

If you clear all the weeds you move onto the next stage where there are more weeds, less time and more flowers to avoid.

Use the arrow keys to move your man.

How it works

10-70 clear screen, display title
80-90 input time limit
120-170 define characters, colours.
180 set screen white
190-220 set variables
230-410 position weeds, flowers and man
420-430 check time not exceeded
440-810 detect keypresses, print new positions, leave trail
820-880 print new flower after each move
890 check man does not leave screen
920-930 checks for hit on flower, trail, weed
940-960 all weeds cleared?
970-1010 deduct one life, make sound
1020-1060 prepare more weeds, flowers for next stage
1070-1130 time up routine
1140-1220 lost three lives routine, another game?



```
10 CALL CLEAR
20 PRINT TAB(9);"****************"
30 PRINT TAB(9);"* WEED KILLER *"
40 PRINT TAB(9);"****************"
50 PRINT
60 FOR D=1 TO 750
70 NEXT D
80 CALL CLEAR
90 INPUT "TIME LIMIT ?":LIM
100 LIV=3
110 CALL CLEAR
120 CALL CHAR(96,"18107C54107C5410")
130 CALL CHAR(128,"183CFF183C246666")
140 CALL CHAR(145,"183C7E3C1D492A1C")
150 CALL COLOR(9,4,16)
160 CALL COLOR(13,9,16)
170 CALL COLOR(15,14,16)
180 CALL SCREEN(16)
190 N=60
200 H=25
210 M=0
220 T=0
230 FOR I=1 TO H
240 RANDOMIZE
250 A=INT(RND*22)+2
260 B=INT(RND*30)+2
270 IF (A=22)*(B=30)THEN 240
280 CALL HCHAR(A,B,96)
290 NEXT I
300 FOR J=1 TO N
310 RANDOMIZE
320 C=INT(RND*22)+2
330 D=INT(RND*30)+2
340 IF (C=22)*(D=30)THEN 310
350 CALL GCHAR(C,D,E)
360 IF E=96 THEN 310
370 CALL HCHAR(C,D,145)
380 NEXT J
390 F=22
400 G=30
410 T=T+1
420 CALLHCHAR(F,G,128)
430 IF T=LIM THEN 1020
440 CALL KEY(3,K,S)
450 IF S=0 THEN 410
460 IF K<>83 THEN 540
470 G=G-1
480 GOSUB 780
490 IF G<2 THEN 500 ELSE 520
500 G=2
510 GOTO 410
520 CALL HCHAR(F,G+1,46)
530 GOTO 410
540 IF K<>68 THEN 620
550 G=G+1
560 GOSUB 780
570 IF G>31 THEN 580 ELSE 600
580 G=31
590 GOTO 410
600 CALL HCHAR(F,G-1,46)
610 GOTO 410
620 IF K<>69 THEN 700
630 F=F-1
640 GOSUB 780
650 IF F<2 THEN 660 ELSE 680
660 F=2
670 GOTO 410
```

```
680 CALL HCHAR(F+1,G,46)
690 GOTO 410
700 IF K<>88 THEN 410
710 F=F+1
720 GOSUB 780
730 IF F>23 THEN 740 ELSE 760
740 F=23
750 GOTO 410
760 CALL HCHAR(F-1,G,46)
770 GOTO 410
780 RANDOMIZE
790 Y=INT(RND*22)+2
800 Z=INT(RND*30)+2
810 CALL GCHAR(Y,Z,W)
820 IF W=96 THEN 780
830 CALL HCHAR(Y,Z,145)
840 IF (G<2)+(G>31)+(F<2)+(F>23)THEN 850 ELSE 860
850 RETURN
860 CALL GCHAR(F,G,X)
870 IF (X=145)+(X=46)THEN 920
880 IF X=96 THEN 890 ELSE 910
890 M=M+1
900 IF M=H THEN 970
910 RETURN
920 LIV=LIV-1
930 CALL HCHAR(F,G,128)
940 CALL SOUND(-750,110,0,111,0,112,0)
950 IF LIV=0 THEN 1090
960 RETURN
970 CALL CLEAR
980 H=H+5
990 N=N+5
1000 LIM=LIM-(LIM/10)
1010 GOTO 210
1020 CALL CLEAR
1030 CALL SOUND(-1000,110,0,111,0,112,0)
1040 M$="T I M E    U P    !"
1050 FOR I=1 TO LEN(M$)
1060 CALL HCHAR(11,I+6,ASC(SEG$(M$,I,1)))
1070 NEXT I
1080 GOTO 1140
1090 CALL CLEAR
1100 M$="YOU LOST YOUR 3 LIVES"
1110 FOR I=1 TO LEN(M$)
1120 CALL HCHAR(11,I+5,ASC(SEG$(M$,I,1)))
1130 NEXT I
1140 PRINT "ANOTHER GAME? PRESS 'Y'"
1150 CALL KEY(3,K,S)
1160 IF S=0 THEN 1150
1170 IF K=89 THEN 60 ELSE 1180
1180 END
```

Eric Adds Up

Designed to test addition and subtration skills for children of pre-school age and above, the range of numbers in this program may be changed by altering the values of A and B in lines 430 and 440.

First the child's name is entered and then the choice is for addition or subtraction sums.

The sum is repeated 10 times and a score out of 10 is displayed.

How it works

70-90 assign light blue colour to character sets 2-12
100 GOTO instruction subroutine
110-170 define characters
190-410 clear screen, print Eric
420-440 assign random values to A and B
450-500 check for addition/subtraction, GOTO appropriate line
510-540 print addition sum
550-560 check for correct/incorrect answer
590-730 correct answer routine
740-900 incorrect answer routine
910-950 PRINT AT subroutine
960-970 input name
990-1200 clear screen, instructions
1210-1340 choose addition, subtraction
1350-1390 subtraction sum subroutine
1400-1490 end of 10 question subroutine, option for new test

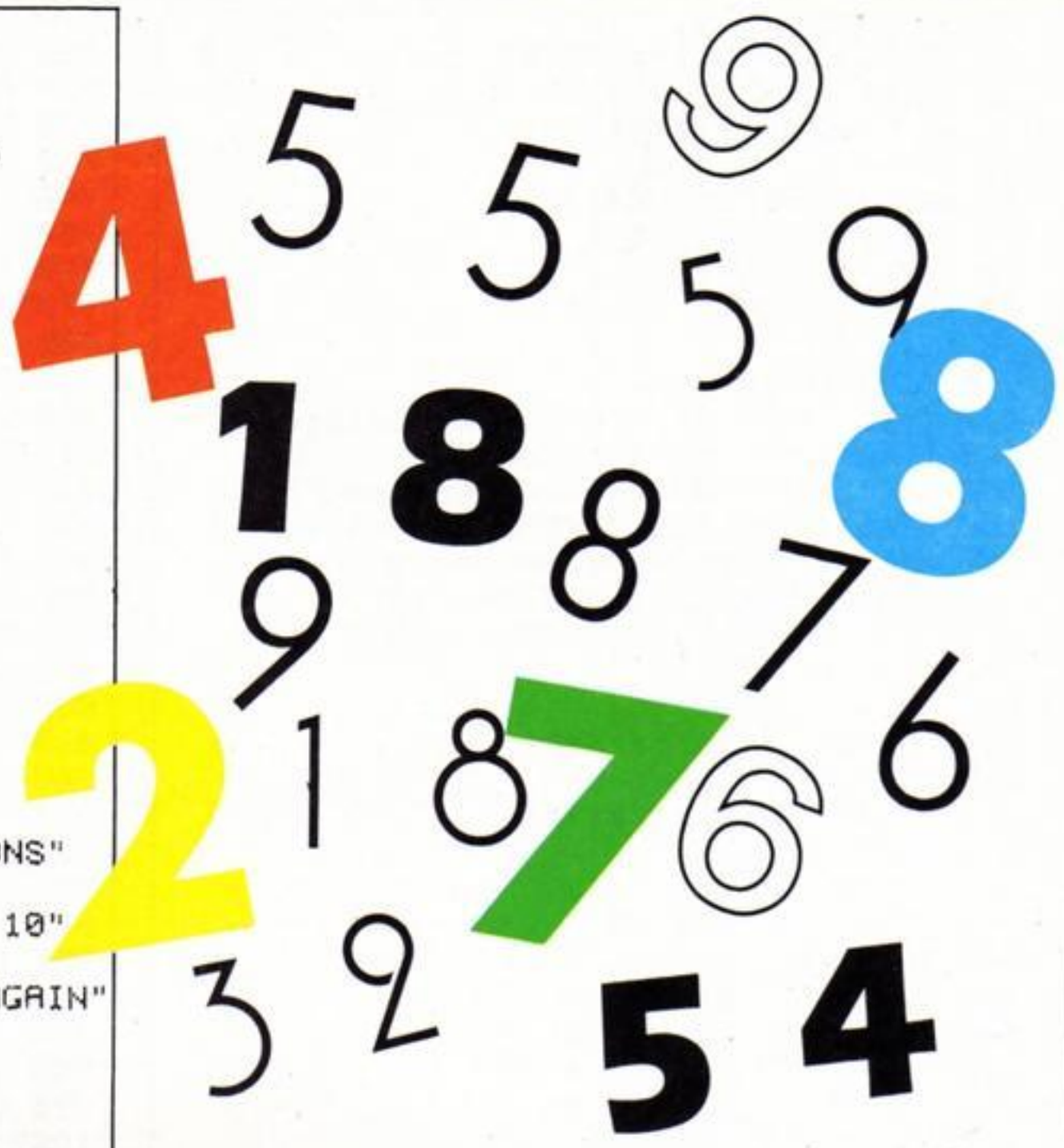
Hints on conversion

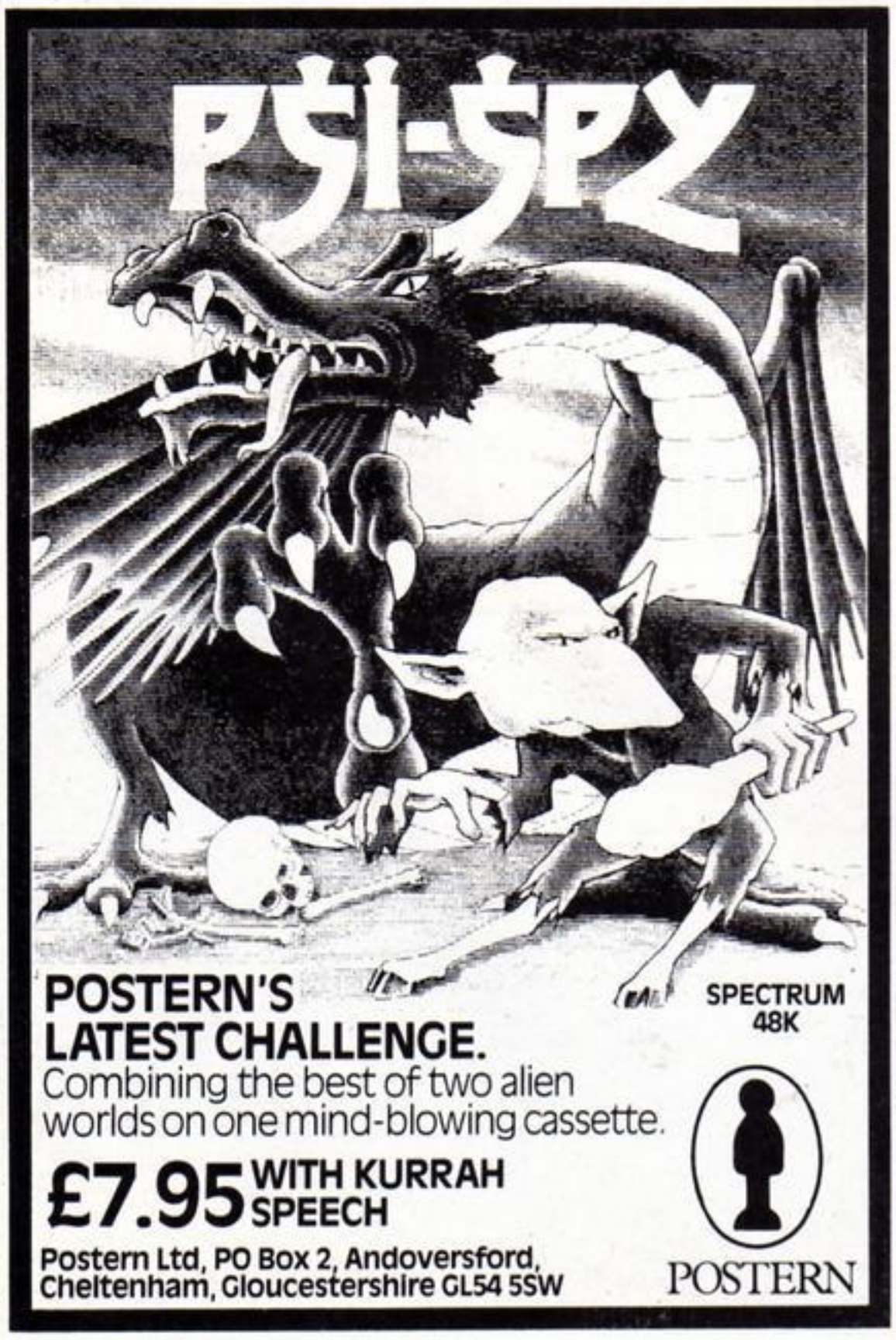
TI BASIC is fairly standard but has some unique graphics commands, some of which are detailed below. The screen is made up of 32 columns and 24 rows.

CALL CLEAR clears screen Replace with CLS or similar on other machines
CALL CHAR re-defines an ASCII character with a sixteen digit hex string derived from an 8 x 8 grid
CALL HCHAR (R,C,ASCII) places a character at row R and column C on the screen and optionally repeats it horizontally
CALL VCHAR similar to HCHAR but repeats character vertically
CALL GCHAR (R,C,X) repeats the ASCII code to variable X of screen position R and C. Similar to a screen PEEK on other machines
CALL KEY (3,K,S) places the code of the key predded into the variable K. Similar to GET on other computers

```
10 REM  ****************
20 REM  * ERIC ADDS UP *
30 REM  ****************
40 REM
50 REM  BY PAUL LEATHLEY
60 CALL SCREEN(16)
70 FOR C=2 TO 12
80 CALL COLOR(C,5,16)
90 NEXT C
100 GOSUB 960
110 CALL CHAR(97,"1010101010101010")
120 CALL CHAR(98,"000000FF")
130 CALL CHAR(99,"0000000000000000FF")
140 CALL CHAR(128,"10284444444443800")
150 CALL CHAR(100,"0000824438")
160 CALL CHAR(130,"0102040810")
170 CALL CHAR(131,"80402010008")
180 FOR J=1 TO 10
190 CALL CLEAR
200 PRINT "   ********"
210 PRINT "   bbbbbbbb"
220 PRINT "************"
230 PRINT "   a.      a.   "
240 PRINT "   a. ~  ~ a.   "
250 PRINT "   a. @  @ a.   "
260 PRINT "   a.      a.   "
270 PRINT "   a.  /\  a.   "
280 PRINT "   a.      a.   "
290 PRINT "   a. cccc a.   "
300 PRINT "   a.      a.   "
310 PRINT "    \cccc/      "
320 PRINT "     a. a.      "
330 PRINT "   /bbbbbb\     "
340 PRINT "   a/bbbb\a     "
350 PRINT "   a.aI AMa.a   "
360 PRINT "   a.a    a.a   "
370 PRINT "   \\ERIC//     "
380 PRINT "   (\\bb//)     "
390 PRINT "   a.a^   ^a.a  "
400 PRINT "   a.a.   a.a.  "
410 PRINT " ccc      ccc"
420 RANDOMIZE
430 A=INT(RND*10)
440 B=INT(RND*10)
450 IF (P=2)*(A<B)THEN 420
460 IF P=1 THEN 470 ELSE 490
470 G=A+B
480 GOTO 510
490 G=A-B
500 GOTO 1350
510 C=19
520 R=9
530 M$=STR$(A)&" + "&STR$(B)&" ="
540 GOSUB 910
550 INPUT T
560 IF T=G THEN 590 ELSE 740
570 NEXT J
580 GOTO 1400
590 CALL HCHAR(10,6,92)
600 CALL HCHAR(10,11,47)
610 CALL HCHAR(5,7,32,4)
620 CALL HCHAR(4,7,126)
630 CALL HCHAR(4,10,126)
640 CALL SOUND(100,587,1,880,1,740,1)
650 CALL SOUND(1000,587,1,880,1,740,1)
660 C=14
670 R=15
680 M$="WELL DONE "&N$
690 GOSUB 910
700 SC=SC+1
710 FOR D=1 TO 750
720 NEXT D
730 GOTO 570
740 CALL HCHAR(11,6,130)
750 CALL HCHAR(11,11,131)
760 CALL HCHAR(6,7,100)
770 CALL HCHAR(6,10,100)
780 CALL HCHAR(8,10,128)
790 CALL SOUND(-1000,110,0,111,0,112,0)
800 C=14
810 R=15
820 M$="HARD LUCK "&N$
830 GOSUB 910
840 C=14
850 R=18
860 M$="THE ANSWER IS "&STR$(G)
870 GOSUB 910
880 FOR D=1 TO 750
890 NEXT D
900 GOTO 570
910 FOR I=1 TO LEN(M$)
920 CALL HCHAR(R,C+I,30)
930 CALL HCHAR(R,C+I,ASC(SEG$(M$,I,1)))
940 NEXT I
950 RETURN
960 CALL CLEAR
970 INPUT "WHAT IS YOUR NAME?":N$
980 GOSUB 1210
990 CALL CLEAR
1000 PRINT "HI ";N$
1010 PRINT "**********"
1020 PRINT
1030 PRINT "SOON YOU WILL MEET ERIC."
1040 PRINT
1050 PRINT "ERIC IS NOT TOO GOOD AT"
1060 PRINT
1070 PRINT "SUMS SO YOU WILL HAVE TO"
1080 PRINT
1090 PRINT "HELP HIM.IF YOU GET THE"
1100 PRINT
1110 PRINT "SUM RIGHT HE WILL SMILE"
1120 PRINT
1130 PRINT "BUT IF YOU ARE WRONG HE"
1140 PRINT
1150 PRINT "WILL START TO CRY."
1160 PRINT
1170 PRINT "PRESS ANY KEY TO START"
1180 CALL KEY(0,K,S)
```

```
1190 IF S=0 THEN 1180
1200 RETURN
1210 PRINT
1220 PRINT "WHAT DO YOU WANT TO DO?"
1230 PRINT
1240 PRINT "PRESS :"
1250 PRINT
1260 PRINT "1 TO DO ADDS"
1270 PRINT "2 TO DO TAKE AWAYS"
1280 CALL KEY(0,K,S)
1290 IF K=49 THEN 1310
1300 IF K=50 THEN 1330 ELSE 1280
1310 P=1
1320 RETURN
1330 P=2
1340 RETURN
1350 C=19
1360 R=9
1370 M$=STR$(A)&" - "&STR$(B)&" ="
1380 GOSUB 910
1390 GOTO 550
1400 CALL CLEAR
1410 PRINT "YOU'VE DONE YOUR QUESTIONS"
1420 PRINT
1430 PRINT "AND SCORED";SC;" OUT OF 10"
1440 PRINT
1450 PRINT "PRESS ANY KEY TO START AGAIN"
1460 CALL KEY(0,K,S)
1470 IF S=0 THEN 1460 ELSE 1480
1480 SC=0
1490 GOTO 10
```





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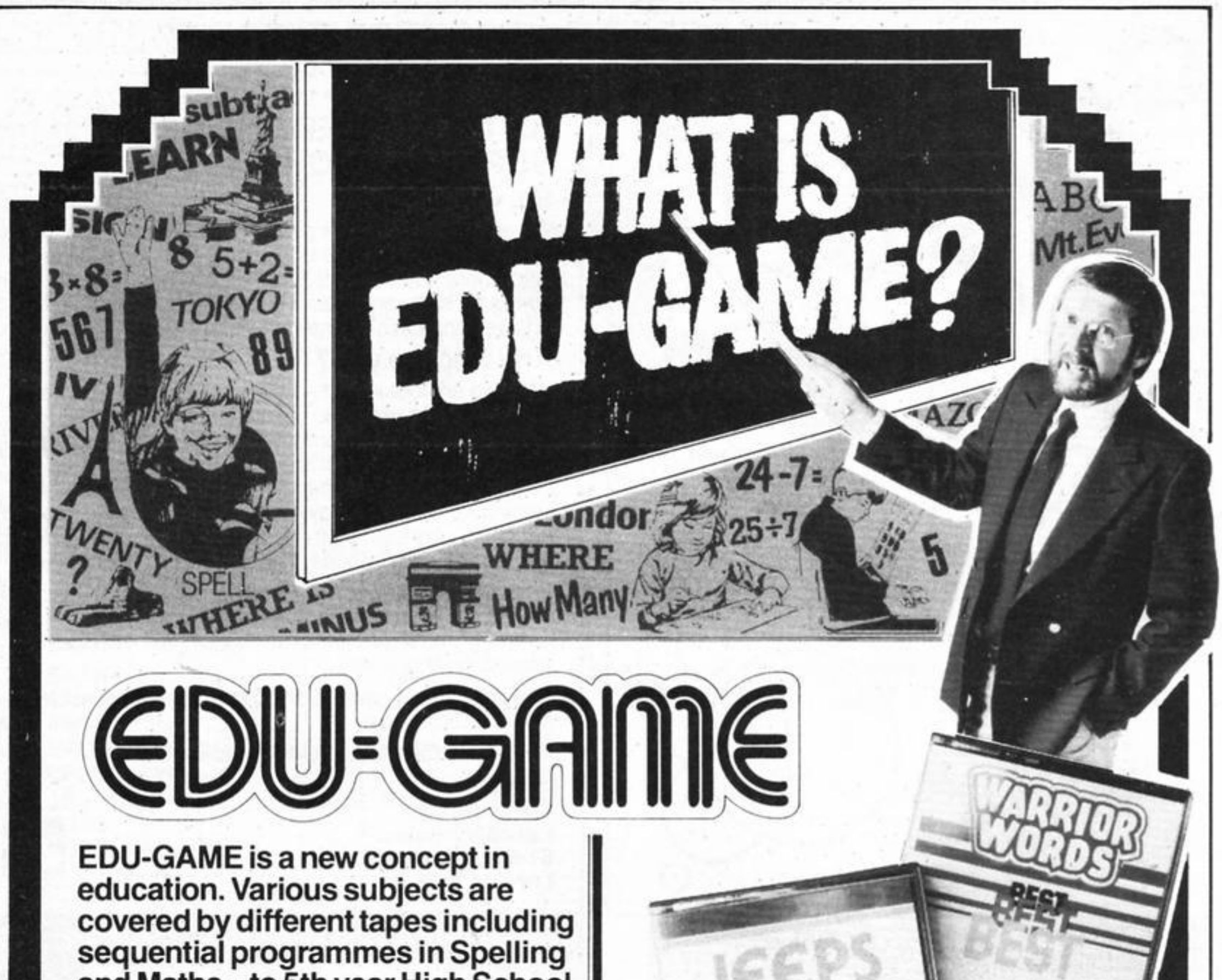

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Eskimo Eddie
48K £6.90

Ocean, Ralli Building, Stanley St, Manchester M35FD

A beautifully drawn loading screen heralds the start of this very cute copy of Pengo, one of the best but lesser known arcade games.

Ocean's colourful version employs delightful graphics, colour and tunes through its two screens of Artic action. Firstly, Eddie must rescue Percy Penguin from the clutches of a rather docile Polar bear, named Growler. For some reason you have to do this three times before the next stage. Here you mysteriously change bodies and play Percy, trying to score points while avoiding the dreaded Snowbugs, which looked to me like frozen custard pies with eyes.

Percy must squash the bugs by pushing ice blocks at them. This is much more difficult than it sounds, particularly as the blocks tend to melt at the wrong moments. The bugs move very intelligently, and it is not long before our hero bites the snow.

This second screen is very attractive and the animation well up to Ultimate standard. But it lacks the addictive quality of its arcade cousin because every time you flatten a bug, he comes back immediately, and very angry, making the game rather pointless.

Nevertheless, a game well worth looking at. **T.B.**

instructions	60%
playability	65%
graphics	100%
value for money	70%

★ ★ ★ ★

Brad Blasts the Galactic Barbarians
48K £5.90

Express Marketing, 73 Watery La, Birmingham B9 4HN

I don't know about you, but I'm getting just a little tired of saving the universe. This game invites us to do it again, so I prepared myself for another cosmic challenge.

Somehow the dreaded Galactic Barbarians have discovered a deadly new super-power serum. As bold Brad your job is to destroy the serum before poor old earth is once again wiped out.

Between fearless Brad and the serum stand no less than five screens of different hostile beasties to blast into oblivion before your eyelids become too heavy. Each screen is a fair copy of an arcade game, but does not hold the attention for long.

Unfortunately the memory devoted to the length of the mission is at the expense of smooth graphics. The introduction sequence is nice though and, if you are anything of a patriot, it will stir you into action.

The prospect of winning a colour TV makes the game worth playing, even though it lacks sustained addictiveness. **T.B.**

instructions	75%
playability	60%
graphics	55%
value for money	70%

★ ★ ★

Winged Warlords
£5.95

CDS, 10 Westfield Cl, Tickhill, Doncaster, S. Yorks DN11 9LA

Quite simply, this is the best version of the arcade game Joust you are likely to see on your Spectrum.

The aim of the ostrich-ousting is to mount your trusty steed (in this case a winged horse) and do battle with the dark lords of the skies, trying to unseat these masters of myth before their lance finds its mark.

The original idea is very well reproduced here. But before you can do battle with the cosmic cavaliers you need to tame your steed. The stallion seems to have a will of its own, screeching to a halt when you try to manoeuvre.

Should you manage to unseat an enemy he topples to the ground, awaiting the return of his well-trained mount. Then he takes to the skies with a vengeance. A particularly lethal red eagle skims across the landscape from time to time.

My only criticism of this outstanding game is that the character set is not re-defined into Gothic type. This would have added the final touch of atmosphere to a game which kept me up well into the night. **T.B.**

instructions	70%
playability	90%
graphics	80%
value for money	85%

★ ★ ★ ★

Thunderhawks
48K £5.95

Lyversoft, 66 Lime Street, Liverpool L1 1Jn

I doubt if anyone will have any difficulty loading this program, but once loaded you encounter the first problem: no instructions. The inlay card says you have either a keyboard or a Kempston joystick option. All right, but which keys? This lack of instructions is inexcusable, all the more so because there is quite a lot of memory left spare.

The game is of the space invaders ilk, with the antagonists in the shape of birds, presumably hawks. That they are are hawks is confirmed by the fact that every now and again they take time off from raining down bombs to sweep down to get you.

The action is quite smooth except for retaliatory fire, which starts off quite slow, and only speeds up as more and more hawks are shot down.

After enduring two screens of the hawks you are faced with a space ship which remains stationary while unloading bombs. Your return fire erodes the underbelly of the space ship, and, although I penetrated the first layer at dead centre, it still bombed me. There is also no hall of fame feature. It adds up to the most user unfriendly game of its kind. Pity. **B.B.**

instructions	0%
playability	75%
graphics	75%
value for money	50%

★ ★

Pedro
48K £5.50

Imagine, 5 Sir Thomas St, Liverpool L1 6BW

Poor old Pedro has no time for a siesta in this entertaining and novel game. His garden is under attack by all sorts of malicious Mexican meanies intent on scrumping his prize blooms.

Pedro bustles around trying desperately to protect his little plot from the likes of red ants and huge blue rats, and the only way to rid the allotment of these unwelcome visitors is to stomp on them with your sandals. At the same time Pedro must replace munched magnolias and try to brick up the garden entrances. Occasionally a shabby tramp slinks into the garden and makes a dash for Pedro's box of seeds, and must be chased off.

Sounds hectic? It is, and is very difficult. The villainous vermin scurry about under your feet, making it very difficult to stamp on them. For me, the third screen is the hardest: I simply cannot bring myself to squash gorgeous little bunny rabbits. Perhaps this is why I usually come to an early end, to be greeted by full overtures of excellent music.

Pedro is a very good game, but not the best I have seen from the Imagine stable. **T.B.**

instructions	80%
playability	65%
graphics	75%
value for money	80%

★ ★ ★ ★

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In HCW 31 I presented a set of machine code input routines for the ZX81. I have now rewritten them completely for the Spectrum making the most of the machine's features.

The inputs I required needed to be virtually self checking and idiot proof, they also needed to perform the following tasks:

- Wait for any valid key to be pressed
- Check for any valid key pressed within a time limit
- Get a sequence of valid characters from the keyboard

A bonus routine became available from the code to allow a "press any key" input.

The secret of validating the keys pressed lies in telling the computer which keys are acceptable before calling the routines. The machine then checks the key pressed against each of the specified keys and rejects invalid inputs.

So that the programmer can alter the valid keys within the program yet allow the computer to find them easily, the string variable C$ should be DIMensioned in the first line of the program.

The length of this string needs to be calculated by counting the maximum number of valid keys at any time **Plus two.**

So, to allow for all the alphabet: DIM c$(28) = 26 letters + 2.

The two extra places are for special markers to let the machine know that it has reached the end of the valid key list, and in the string input routine to signal return to BASIC (ENTER code).

The Inputs program has been written to operate on either 16 or 48K machines by lowering RAMtop 201 bytes below the UDG area. Line 10 does this then assigns the variables a and b to this address and prints it for your information.

Lines 20 to 50 read the machine code routines from the DATA statements (lines 1000 -1030) and POKE them into memory, displaying the address of each one.

Line 55 informs you where the string of characters inputed will be stored.

Lines 60 to 90 make the adjustments necessary to allow for 16 or 48K. This also makes it possible to relocate the code by specifying the address in line 10 and seting variables a and b accordingly.

Once you have entered the code I suggest you SAVE it. If you have made only one error in the numbers then you could lose the lot.

Run the program and jot down the information displayed (or COPY on a printer). The 48K addresses are shown in figure 1. We are now ready to test it.

Using the program

First, type NEW — the actual code is safe above RAMtop — and enter the line:

10 DIM c$(12)

I have used a length of 12 for demonstration purposes only. Calculate the value you need as explained earlier.

In all the following tests I have used the 48K addresses. Substitute the 16K values as required. Should any test fail re-load the program and check it carefully.

Press any key routine.

Enter LET K = USR 65168

The computer should sit there doing nothing until you press a key when the 0 OK report should appear.

Press a single valid key

First set the valid keys by adding a line:

20 LET c$ = "agp*"

The number of leters must not exceed the length of C$ and must include the "*" at the end as this is the computer's end of valid keys to check marker.

Also the upper or lower case mode must correspond — it's no good checking for "agp" if the machine is in CAPS LOCK!

Now call the routine by lines:

30 LET k = USR 65189
40 PRINT k

If you now run the program the Spectrum should wait until you press one of the specified keys, a, g or p. All other keys including BREAK should be inoperative.

A very useful feature of the routine is that the value returned is in relation to the key's position in c$, i.e. 1 is returned for a, 3 for p.

This means that it is very versatile in use in a program as you can use lines like:

50 GO TO USR 65189*100
60 IF USR 65189 = 2 THEN..

(Do not enter these lines for testing.)

This feature also applies to the timed input routine, except the value 0 is returned if no key is pressed in time.

Timed Input

Use exactly the same as the previous routine only change line 30 to LET k = USR 65224

Instead of waiting forever for a correct key to be pressed, the routine returns after a brief pause. This pause can be lengthened or shortened by POKEing a value to the start address, plus 68, with a number from 1 (no pause) to 255 (long pause, e.g. On 48K, POKE (65168 + 68),1

String Input

c$ must contain the valid keys plus a space and the "*". A space at the start is needed if you want the routine to cater for a space in the input.

The end space is replaced with the code for ENTER so that the computer knows when to return to BASIC. This is done by counting that characters in the string including the last space — say n characters — and including the code LET c$(n) = CHR$ 13. For example:

20 LET c$ = "abcdefgh *": LET c$(9) = CHR$ 13

To call this routine it is necessary to use the following code as a subroutine or line, because we now have to unpack the characters stored in the string address into a string variable.

I used a$, but any variable will do.

A very useful feature of this code is that the input can be directed to any part of the screen.

30 LET a$ = "": PRINT AT 0,0;
40 FOR i = 0 TO USR 65276-2
50 LET a$ = a$ + CHR$ (PEEK [65316 + i])
60 NEXT i

Now that you have your code, checked it and want to use it, I suggest that you new the program to remove any test lines and enter:

1 REM any key = 65168
2 REM waitkey = 65189
3 REM timekey = 65224
4 REM str-inp = 65276
5 REM chars = 65316
10 DIM c$(n): REM n = max no. of chars + 2
9989 STOP
9990 SAVE "progname" LINE 9995: SAVE "code" CODE 65168,200
9995 CLEAR USR "a" – 201: LOAD "" CODE : RUN

To save this short BASIC program and your machine code, type GOTO 9990. The program and code will save in two blocks and on reloading will set up RAMtop, load in the machine code and auto run.

Of course the program will always stop with the undefined variable report in line 10 until you replace n with the value you require.

Now all you have to do is write your own programs incorporating these routines. ▶

Listing for Spectrum INPUT routines

```
  1Ø CLEAR USR "a"-2Ø1: LET a=US
R "a"-2ØØ: LET b=a: PRINT "Code
starts at ";a .
  2Ø RESTORE : FOR i=1 TO 21: RE
AD x: POKE a,x: LET a=a+1: NEXT
i: PRINT '"Wait for key routine
at ";a
  3Ø FOR i=1 TO 35: READ x: POKE
 a,x: LET a=a+1: NEXT i: PRINT '
"Timed INKEY$ routine at ";a
```

SPECTRUM PROGRAMMING

```
  4Ø FOR i=1 TO 52: READ x: POKE
 a,x: LET a=a+1: NEXT i: PRINT '
"String Input routine at ";a
  5Ø FOR i=1 TO 39: READ x: POKE
 a,x: LET a=a+1: NEXT i: PRINT '
''"To save code type :"''"SAVE ""
inputs"" CODE ";b;",2ØØ"
  55 PRINT '''"String Input char
acters start"'"at address ";b+14
8
  6Ø LET aØh=INT (b/256): LET aØ
l=b-256*aØh: LET a1h=INT ((b+6)/
256): LET a1l=(b+6)-256*a1h: LET
 a2h=INT ((b+11)/256): LET a2l=(
b+11)-256*a2h
  7Ø POKE b+22,a1l: POKE b+23,a1
h: POKE b+27,a2l: POKE b+28,a2h:
 POKE b+32,aØl: POKE b+33,aØh
  8Ø POKE b+27,a1l: POKE b+58,a1
h: POKE b+62,a2l: POKE b+63,a2h:
 POKE b+71,aØl: POKE b+72,aØh
  9Ø POKE b+114,(b+148)-256*INT
((b+148)/256): POKE b+115,INT ((
b+148)/256): POKE b+122,(b+21)-2
56*INT ((b+21)/256): POKE b+123,
INT ((b+21)/256)
1ØØØ DATA 2Ø5,142,2,14,Ø,32,249,
2Ø5,3Ø,3,48,244,21,95,2Ø5,51,3,2
Ø1,62,Ø,2Ø1
1Ø1Ø DATA 33,Ø,Ø,54,249,33,Ø,Ø,5
4,244,2Ø5,Ø,Ø,1,6,Ø,42,75,92,9,1
4,1,19Ø,2ØØ,87,62,42,19Ø,122,4Ø,
235,35,3,24,243
1Ø2Ø DATA 33,Ø,Ø,54,11,33,Ø,Ø,54
,6,17,Ø,16,213,2Ø5,Ø,Ø,1,6,Ø,42,
75,92,9,14,1,19Ø,4Ø,13,87,62,42,
19Ø,122,4Ø,4,35,3,24,242,14,Ø,2Ø
9,12Ø,177,192,27,122,179,32,218,
2Ø1
1Ø3Ø DATA 62,2,2Ø5,1,22,33,Ø,Ø,1
,1,Ø,229,197,2Ø5,Ø,Ø,193,225,119
,35,254,13,2ØØ,3,215,229,197,2Ø5
,142,2,14,Ø,2Ø5,3Ø,3,56,246,24,2
3Ø
```

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Sprint Dragon 32 £14.95

Oasis, Alexandra Parade, Weston-Super-Mare, Avon BS23 1QT

A BASIC compiler which aims to speed up your programs by using an interpreter. However it's not easy and I wouldn't recommend this for the faint-hearted.

There are three parts: controller, machine code compiler and linker. You first renumber the BASIC program from 0 in increments of 1, then save an ASCII copy. Next, load the compiler and debug your program. This can be very frustrating as you scan the error codes, make notes and continue. You then need to reload the original program, alter it and go through the motions again. If you get through the debugging stage unscathed your program is compiled and you have the option of saving and/or EXECuting. The reward is considerable.

There are limitations. Most important is that it will not support floating point so your program must contain whole numbers. Work is continuing to remedy this. There are many other drawbacks in using Oasis BASIC as not all Dragon BASIC commands are compatible.

All is not lost, however, as the compiler takes your BASIC program and prints to screen or printer complete with error messages. And there is a very comprehensive manual.

Well worthwhile. **M.P.**

instructions	80%
ease of use	60%
display	50%
value for money	80%

★ ★ ★ ★

Tasword 48K Spectrum £13.90

Tasman, 17 Hartley Cres, Leeds LS6 2LL

Although this may appear to be expensive, believe me it isn't when you consider what you get. If you really want to use your Spectrum, as opposed to merely playing, this is for you.

Using Tasword, your Spectrum suddenly acquires 64 characters per line, and becomes a typewriter, with the screen as the paper. You can then type, edit and delete words to your heart's content. The text is automatically filled out with spaces to produce a neat block appearance. If you want to add words, the paragraph is re-shaped with one key press.

Particularly useful is the facility to move a whole block of text from one place to another and to search for a word and, for example, replace it correctly spelled, again with one press of a key.

When complete, your text can be saved to tape or Microdrive, and if you wish, printed out on either a ZX Printer, or any of a number of "proper" printers with the correct interface.

Tasword comes complete with a full printed manual, and is without doubt, the best utility I have reviewed for the Spectrum. **D.M.**

instructions	100%
ease of use	100%
display	100%
value for money	100%

★ ★ ★ ★ ★

Finance Manager — Plus 80 48K Spectrum £19.95

OCP, PO Box 99, Oxford

Like all OCP programs, the presentation is superb with a tough, hinged-lid storage box, containing a well written manual, and the cassette in a moulded plastic tray, with a similar space for the data cassette which you create using the program.

Entirely in machine code, this super-fast software is designed to handle double entry accounts for business or home. You can control up to 255 sources or destinations for money and analyse them. The limit on individual inputs is 1p less than £10,000, and each account can handle just short of a million.

You can also merge, delete, edit and re-name accounts, reconcile, amend and delete transactions, and standing orders can be manipulated. With this Plus-80 version, printer output is through the Kempston Centronics interface to a full size printer, for really professional documents. You are however limited to cassette. It won't service Microdrives or the ZX Printer.

Superbly produced, fast, well documented and user friendly. All software should be like this. But there's an enormous price differential to drive a full size printer. The standard version, at £8.95, is super value for money. **D.M.**

instructions	100%
ease of use	95%
display	100%
value for money	60%

★ ★ ★ ★

Machine Code Test Tool Spectrum £9.95

OCP, PO Box 99, Oxford

If you're trying machine code, this could be for you. It allows you to enter machine code instructions into any area of RAM and insert break points to prevent you from crashing and losing the lot! If you find a mistake, you then alter your code and try again.

Although both instructions and data must be entered in hexadecimal, MCTT has a conversion command, and will also allow you to page through memory to see what's there. Perhaps the most fascinating command to novices will allow you to see the values in the Z80A CPU registers, so you can see whether your code is producing the desired effect.

This, of course, is no good if you don't understand the nuts and bolts of the instruction set and registers. Fortunately, MCTT comes with a small, but useful manual, which explains hexadecimal, registers, and many of the common Z80 instructions.

You won't rush out and write Manic Miner after using this but, used with OCP's Editor/Assembler, MCTT will help when you reach that standard. **D.M.**

	100%
instructions	90%
ease of use	95%
display	90%
value for money	

★ ★ ★ ★

Full Screen Editor/ Assembler Spectrum £9.95

OCP, PO Box 99, Oxford

Used in conjunction with OCP's Machine Code Test Tool, this is an impressive piece of software. You enter your machine code and data in the form of mnemonics and decimal numbers respectively, next to pseudo line numbers, and move lines, whole routines, change strings and so on using the editor. Alterations and input happen anywhere you place the cursor. A buffer holds your machine code, the source code and, if MCTT is present, you can try it out and alter it before the next stage.

The source code is translated in two stages and labelled with headers to allow loading into the area for which it is designed. This is now the object code. If, however, your source code contained errors, the assembler will tell you what and where, then it's back to the editor/monitor to sort it out.

Although superbly presented with an excellent manual, don't expect to be a genius in half an hour. Real brain bashing is required. A test game can be examined, altered and assembled to give you a real insight. Impressive, well documented and real value, it also includes a character generation program. **D.M.**

instructions	100%
ease of use	95%
display	100%
value for money	95%

★ ★ ★ ★ ★

What will they learn from these?

Our regular page of educational software reviews. Our experts sum up their findings

Dragon Digits Dragon 32 £6.95

Dungeon, Milton House, St John St, Ashbourne, Derbys

Four games with a mathematical flavour written by a maths teacher. A careful balance between educational value and entertainment has been tried and largely succeeded. The four are all within one program, accessed by menu, and suitable for children aged 10-plus.

The first, Formuline, is akin to noughts and crosses but to fill a space you must work out an equation to equal the number in the space on the board. What Next? is a sequence game with a series of numbers displayed. You must calculate the next — good for mental arithmetic. Reversal is, as its name suggests, a game where you must reverse a collection of digits into their original numerical order. Lander is a standard text lunar lander game with more emphasis on the calculation of thrust in relation to mass, amount of fuel left, height and gravitational pull.

The games are well linked with good instructions and have educational value, but there are few graphics and they are rather uninspired. For the 10 year old, if weaned off invaders, this would be of benefit. **C.G.**

instructions	80%
playability	50%
graphics	25%
value for money	70%

★ ★ ★

Educational Compendium Spectrum £6

Orwin, 26 Brownlow Rd, London NW10 9QL

Although well documented, there is no hint as to which age group this is aimed at. One side has three programs using a triangular shape which the very young might think is a tortoise. All follow the same format, but do slightly different things.

The tortoise graphic program allows you to guide the tortoise around the screen, leaving a trail. Tortmaze requires you steer it to a target diagonally opposite and Tortrail involves rubbing out the trail. The last two are timed.

On the other side, Equation Invaders invites children to fire the right sign — multiplication or division, addition or subtraction — into the correct place in an equation, replacing a space invader character.

Reveal is a punctuation program in which you "buy" punctuation marks at 10 points at a time. You start with 500 points and there are 20 examples, of increasing difficulty, on the tape.

There is also a program which allows you to write your own text but it is a pity it does not allow you to choose which letters you wish to hide.

Quite good value.

instructions	90%
ease of use	75%
graphics	70%
value for money	70%

★ ★ ★

Map References 32K BBC £7.50

LVL, Electron House, Bridge St, Sandiacre, Nottingham

Two programs designed to teach the use of grid references to young people of nine to 16-plus. Treasure Island, invites you to locate five buried chests by specifying six-digit grid references. The island is displayed with the eastings and northings grid overlaid. When located, the chests are revealed accompanied by a sea shanty. Nine attempts are allowed for each. If you fail to locate a chest its co-ordinates are displayed, though it would be useful to see the actual chest in position too.

Artic Patrol is similar, but here you are trying to direct your helicopter to locate a submarine under the polar ice cap searching for a place to surface. Unlike Treasure Island your guesses are not permanently marked on the grid making it a little more difficult to see where you have been. But your guesses are still tabulated on the display. If you locate the sub your helicopter flies to the area and duly obliterates it. The action here though is anything but smooth.

Instructions are clear and concise and both programs achieve their aim quite well. **D.H.**

instructions	90%
ease of use	80%
display	75%
value for money	65%

★ ★ ★

Goldilocks 48K Spectrum £9.95

Five Ways Arrow, 17-21 Conway St, London W1P 6JD

A comprehensive, well-designed package containing story book, tape, parents' book, overlay and program in a library cassette box. The aims are to introduce words, practice reading from left to right, develop understanding of how words form sentences, introduce punctuation marks and to improve hand-eye co-ordination.

Story Time, where parent and child listen to the story while reading the book, is followed by a program using five activities. Snap appears in three activities, where two characters, Goldilocks and Baby Bear, stand on boxes upon which pictures or words appear. Pressing pink or blue areas on the overlay signify snap for either player — causing the character to dance and a plant to grow, flowering after five correct answers.

Find the Word presents a sentence with a flashing picture replacing a word; while above are three words next to a pointing character, whose hand is keyed to move — the selected word keyed to the gap. Correct ones cause the character to dance and the word to appear.

All activities are repeated using the Wolf and Red Riding Hood. **T.W.**

instructions	90%
ease of use	85%
display	100%
value for money	90%

★ ★ ★ ★ ★

First Numbers Dragon 32 £5.95

Dungeon, Milton House, St Johns St, Ashbourne, Derbys

Two musical graphics programs for children of nursery school age. Counting Rhymes displays a menu of five well-known songs involving a counting element, such as Ten Little Soldiers.

On choosing the correct number, the rhyme is displayed and played. After this, there is a maths question (simple addition) involving the rhyme. The rhyme is shown in pictures with the words underneath.

The second program, Number Fun, involves a journey through a land of nursery rhymes. The method of propelling the car involves pressing the correct number on the keyboard corresponding to the number on the giant dice.

This was a clever idea which will help young children recognise numbers. But I feel a dice should not have been used throughout the whole game. It would have been much better to use other forms as well. A minor grouse — overall, these programs are very good value and will benefit young children.

C.G.

instructions	60%
ease of use	75%
graphics	85%
value for money	75%

★ ★ ★ ★

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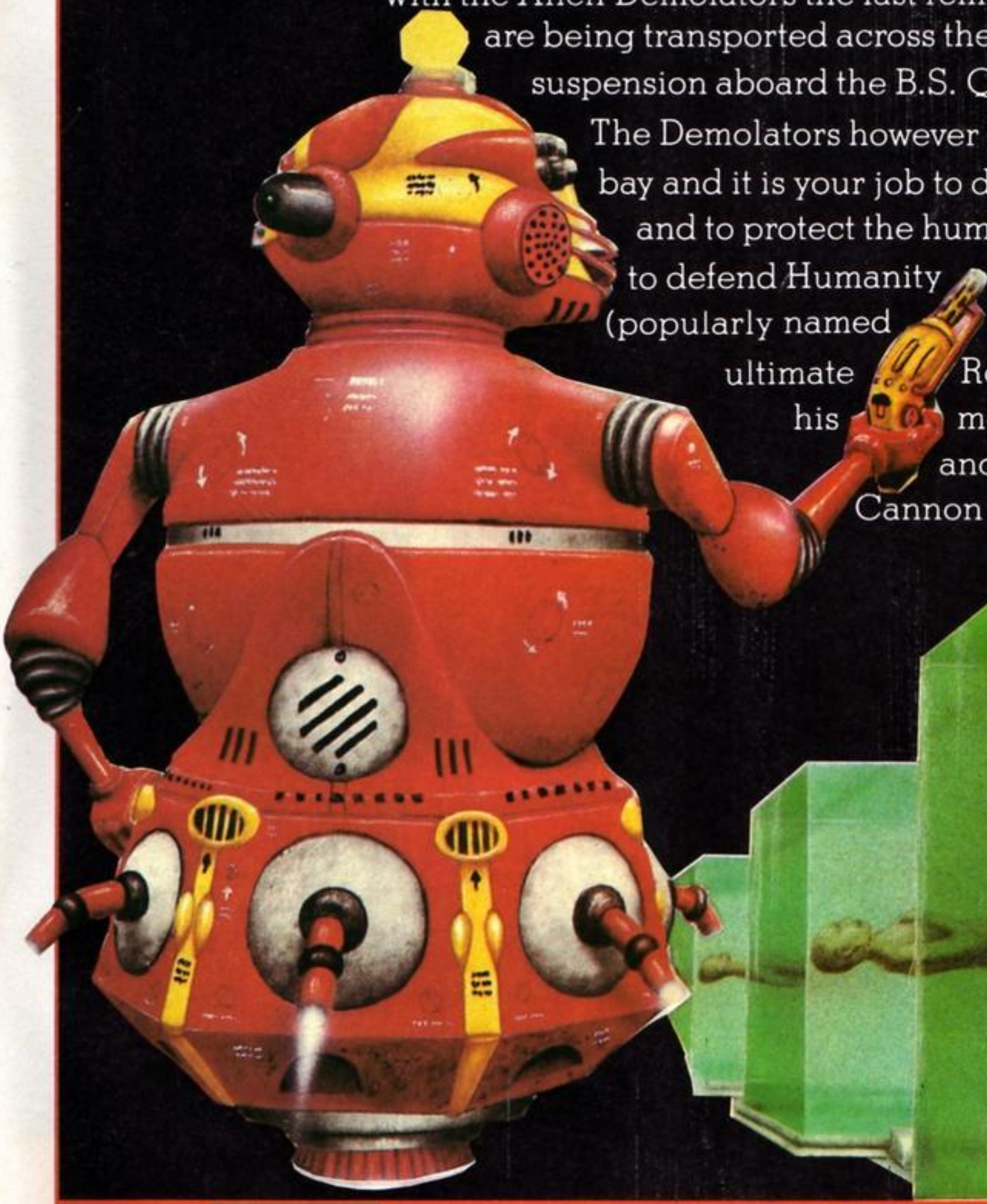

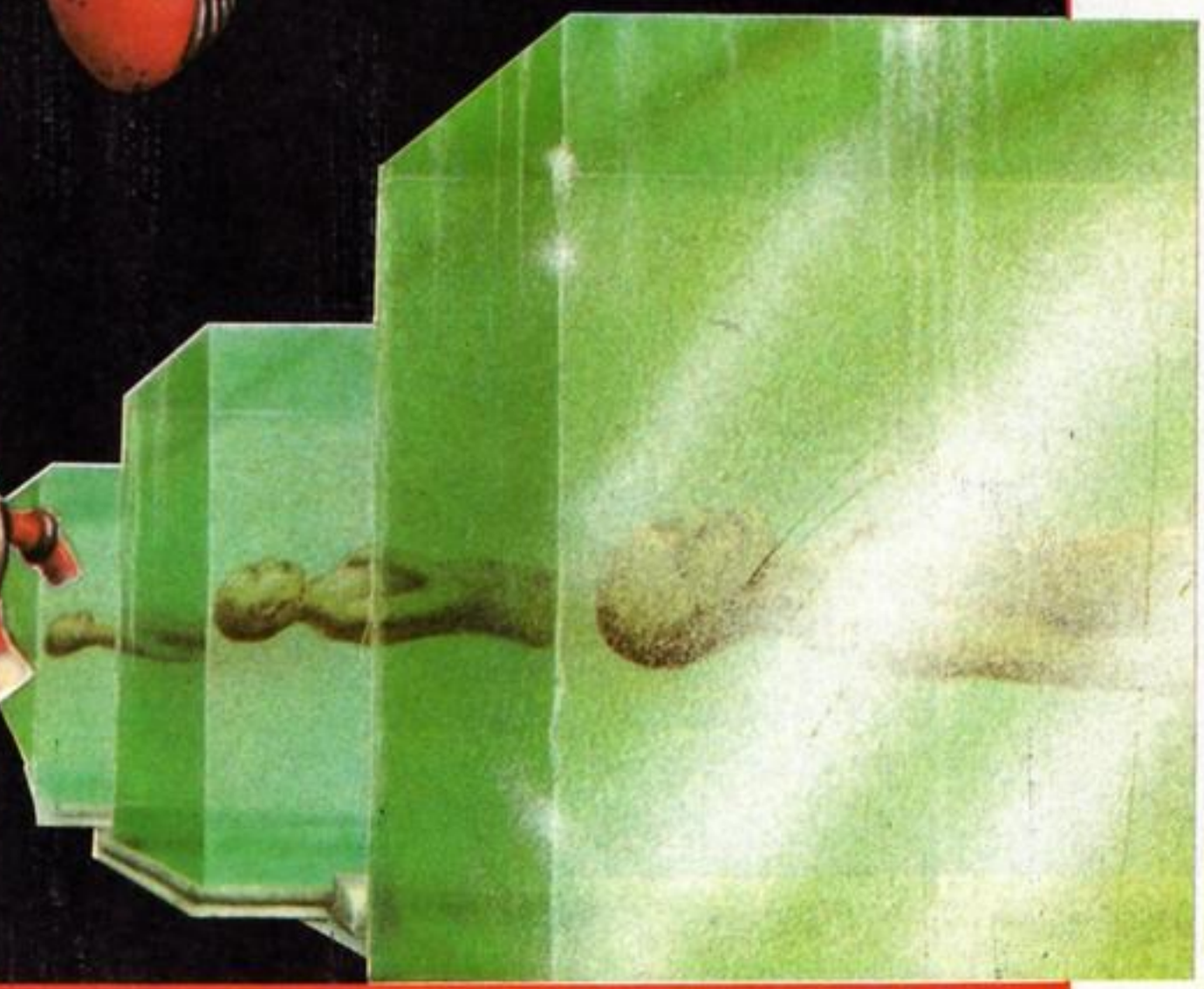

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